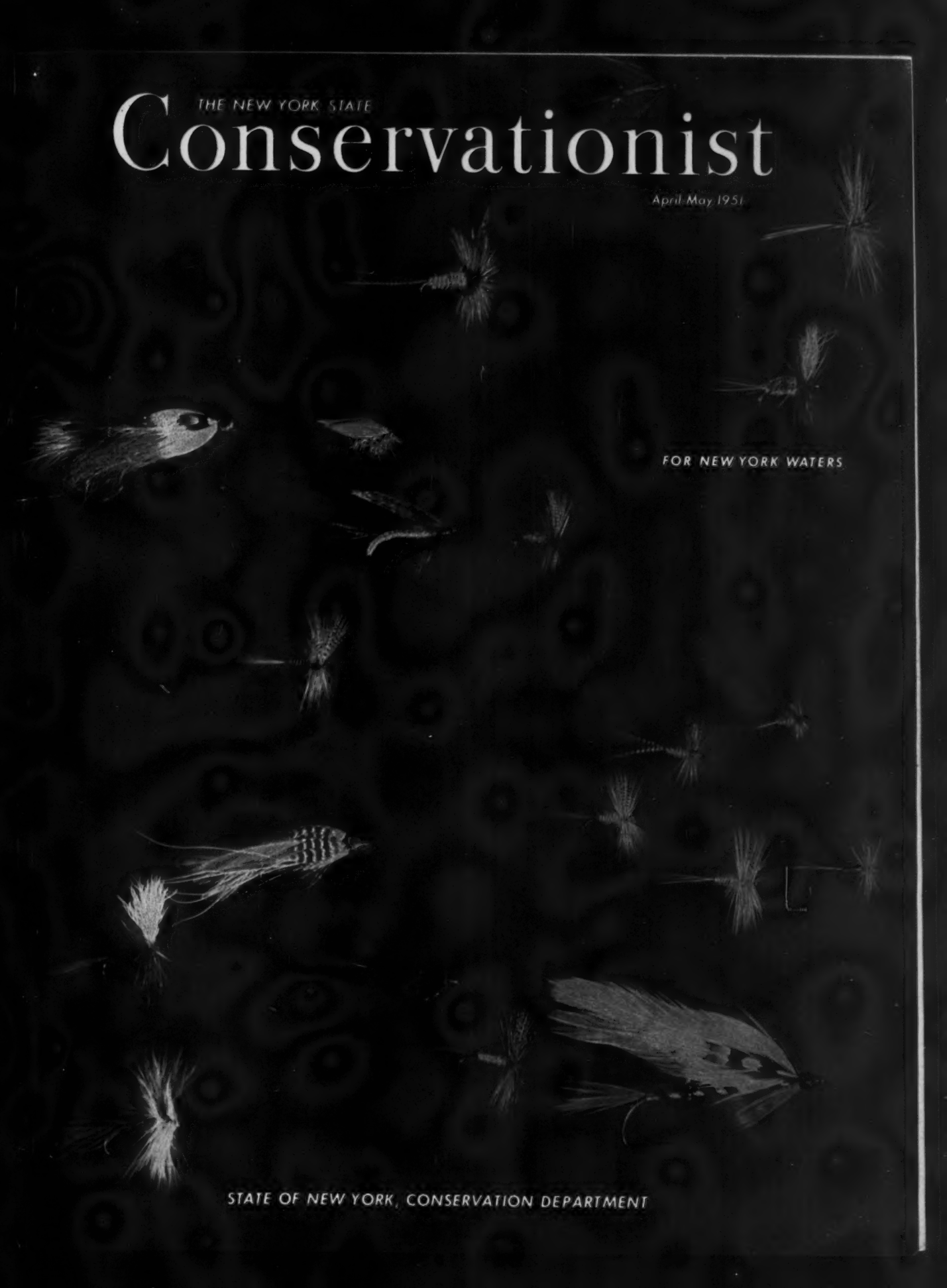
THE NEW YORK STATE

Conservationist

April-May 1951



FOR NEW YORK WATERS

STATE OF NEW YORK, CONSERVATION DEPARTMENT

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April-May 1951

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SPRING DIARY

With notes on secretaries, people who tie flies, and other curious native species.

Today is the day we're supposed to write an editorial. It's a nice spring day outside, but it looks like it's going to be rough in here. Got off to a very poor start, anyway.

To begin with, our secretary walked in and threw us way off balance by announcing that she'd just bought a full sized bow-and-arrow outfit so that she can go deer hunting with her husband next fall. Practice is to begin at once (in the hall, no doubt) and will continue throughout the summer. Haven't decided what to think about this yet.

Then just a few minutes ago a character walked briskly into our office and out of the window. As this does not happen too often, even in our office, we decided it might be worth interrupting the editorial to investigate, and there was this character adjusting his safety straps and preparing to make a good college try at chipping off the outside layer of soot, smog and corruption that has stood between us and the light of day for many moons.

Must be a new species, we thought; window cleaners are supposed to be extinct in these parts. And we were about to let it go at that and return to our editorial when this character pulled down the top half of the window, stuck his head in and looked furtively around to be sure that the coast was clear. Then he tapped us on the shoulder.

"Look Mac," he said. "I'm way behind schedule this spring. You got any wood duck feathers?"

"Try some steel wool," we said. "Or an old razor blade. That ought to—" And then suddenly we got suspicious and took another quick look at this character. Sure enough, he had that glint in his eye.

"You tie flies." (Might as well accuse him directly.)

"Sure," he said. "That way you can fish the year round. In your imagination, of course. Every fly I tie, I can just see it getting sucked in by a whopper. Boy, that's good fishing. Now look Mac, about those wood duck feathers. Maybe we can make a deal."

Tomorrow would be a good day to write an editorial. We peered cautiously around the corner to see what our secretary was doing and then set off after wood duck feathers, reflecting en route that there were quite a few outdoor bandwagons that people can climb on if they've got a mind to. —*Editor*

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NO STAMPS, PLEASE

THE NEW YORK STATE
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STATE OF NEW YORK
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FOR NEW YORK

We haven't got *all* of the State's best fly makers on these pages, but we've got a lot of them. The idea of this collection was born suddenly and had to be acted on in a hurry, and we hope that the many experts not included here won't feel slighted. The trouble is that a great many New Yorkers tie extremely good flies.

The ten artists we got in touch with couldn't have been more co-operative. And we couldn't be more grateful. We can't help but worry, however, that somebody's hackles may not be standing up just the way they should.

HARRY DARBEE, LIVINGSTON MANOR

FLAT WATER PALE GINGER: This is one of a series of tiny flies* that I developed for my own use on the tails of the big pools in the Beaverkill and other similar places where the trout are taking midges. I rarely use this fly in sizes above 16 and like 20's best. I use this same type in several colors to match the hatch as nearly as possible. Of a dozen different color combinations with which I originally experimented, I finally settled down to three in addition to the Ginger. They are: all dun, black with white wings, and olive with dark wings. The fly is designed to float well even after it has been mauled by a chub. A couple of false casts will dry it out.

DEER HAIR NYMPH: This one works efficiently when well soaked and seems to be near enough to the *Isonychia* (*Isonychia Bicolor*, May Fly—Dun Variant.—Ed.) to take them when the natural is active. But it is oversize for any *Isonychia* I ever saw on the Beaverkill. Some friends to whom I gave this one for trial have taken some very fine fish with it. It is new and has not been generally used. I dye the deer hair a deep rust or red-brown. If any amateurs want to try making this one up, I suggest that they clip the deer hair first so that the dye will penetrate clear through and not merely color the surface.

* Not shown on cover. Both Mr. Darbee and Roy Steenrod tied Hendricksons for the cover, where both versions are shown.—Ed.

MRS. DARBEE

GOLD-RIBBED HARE'S EAR: This important wet fly is from a very old English pattern and is dressed in many variations and sizes. It is one of the very best early flies either my husband or I have ever used. In fact, Harry says that if he had the choice of only one wet fly, he wouldn't hesitate to choose this one. A variety of sizes will be found useful.

WHITE-WINGED McDOUGAL: This one is a variation of the Rat-Faced McDougal originated by Percy Jennings of Cold Spring Harbor, Long Island. I remember that Percy got my husband to tie a clipped deer hair May Fly for him on a standard hook and from that the McDougal was developed. Percy claimed that Harry originated the thing but the male side of my family has refused to take credit for it. This fly is extremely useful, since its wings are so visible. It really represents no insect but it has taken a good many very heavy fish. Of course, it floats very well—and in heavy water, too.

PERRY EHLERS, NORTH RIVER

BLACK GHOST: This fly needs no introduction to most fishermen as it has been a consistant producer when used for trout, salmon and bass in both Canada and the United States. It's my second choice in streamers for big trout, both brown and native.

CHAMBERS: My favorite fly. It was first tied late in 1936 and was designed to be fished deep for big browns, as all of the materials used in this fly sink rapidly. It has worked remarkably well all over the East and has been used in Alaska and Canada with good results for both trout and salmon. *Ribbing:* round or oval gold tinsel; *Body:* flat silver tinsel; *Wing:* yellow impali hair topped with gray squirrel tail; *Shoulder:* small mallard breast feather; *Cheek:* very small Jungle Cock; *Head:* black with painted red throat and yellow eye with black center.

I might add that this fly went nameless for three or four years, until one day Bob Chambers of Broadalbin took a large trout on it. As Bob is one of the best streamer fishermen I know I have called it the *Chambers* since then.

ROY STEENROD, LIBERTY

ROYAL COACHMAN: I used it (wet) in streams of Sullivan County before the brown trout had really got started and with good results. After my friend Theodore Gordon tied the Fan Wing Royal Coachman (dry) I used it for several years and took many large brown trout. Of late years I've been using the Hair Wing Royal Coachman (dry). It is more durable tied that way. Since I fish the swift and white water I tie this fly on #10 hook and dressed full. It floats well and is easy to see and catches trout.

At times when there is a large hatch of flies on the water and trout are going crazy—and you're not able to take a fish on the nearest imitation you present—I find that changing to the direct opposite, the Royal Coachman, brings results. This has happened many times in my experience.

HENDRICKSON: This, of course, is my favorite fly, not because I was the first to tie it but for the reason that it will take fish. This is not just my own opinion, but that of hundreds of other fishermen. After many years of observation on the stream, I find that the Hendrickson hatches out about May 6. After this date I am satisfied to fish the remainder of the season with this fly in hook sizes 10 and 12, if body and hackle are correct color. Having confidence in your fly and knowing where to find your fish under different conditions—and, of course, the proper presentation of your fly—has much to do with making one a successful trout fisherman.

WATERS

LARRY KOLLER, SPRING VALLEY

LEADWING COACHMAN: This and the Silver Prince, as wet flies are productive patterns for early season fishing in all medium to large streams. The Leadwing of course is an old stand-by in the wetfly list, not because it imitates a specific form of insect life but rather for its similarity in form and color to a wide group of underwater nymphs favored by trout. When trout begin to leave the bottom in search of insect food, as the water warms up, they're not nearly as selective as they later become, when heavy hatches of a single May Fly species emerge. Thus the Leadwing—with its fat, bronze-green body of herl, dark wing and brown hackle—simulates many nymph and creeper forms found moving about the stream in pre-hatching activity.

SILVER PRINCE: Created to fill the need for a pattern having attributes of both the "natural" and "attractor" types. Generally dark in color, with bronze wing and black hackle, it serves (like the Leadwing) to represent the dark tone of early-spring nymph life. At the same time the solid silver-tinsel body gives flash and life which attracts attention in heavy, high water or in those periods when the stream is less than crystal-clear.

Both these early patterns are more effective for big-stream fishing if the body material is "fattened up", as shown, by padding the hook shank with white yarn or floss before covering with the herl or tinsel. Fished as a pair, with the Leadwing on the tail, the Prince on the dropper, they're a deadly combination on the larger New York streams in May.

LEE WULFF, SHUSHAN

GREY WULFF: The first of all the hair winged dry flies, and my favorite for trout. It is a good May Fly imitation, a durable floater and a fly big enough to pull trout to the surface when there is no particular hatch on the surface. It's size and heavy body are a fair representation of some of the bumbling land insects that occasoinally fall to trout waters and the fish, alert for such a sizeable, occasional tidbit take it well on days when there's little surface activity.

GREY GHOST: This fly has a nice balance of color for a minnow imitation. It seems to work particularly well in clear water and on bright days when many of the gaudier streamer patterns are less effective. I like to work it a little deeper and slower than normal for midday fishing.

WALT DETTE, ROSCOE

COFFIN FLY: During the late Twenties, the May Fly hatch on the Beaverkill was something to remember. Where today most of these hatches are sparse and scattered, in those years June brought the Yellow May and the Green Drake, followed by the *Coffin Fly* in clouds—not just a few scattered flies—and the trout fed upon them from early evening until past dark as though they hadn't eaten all year.

It was during this time that the late Ted Townsend, that craggy nosed Game Warden from Westchester County, pulled most of his remaining hair out trying to find flies to match the hatch. Not that he didn't get fish, but there were always a few big ones that were quite choosey and wouldn't take what he had. Many is the evening he sat at our elbows helping to choose material to get the right fly. The Coffin Fly was the result of our efforts. As originally tied the body was made of strands of white deer tail wound on. While this copies the natural very closely, it is not durable enough. Today we tie the body of polar bear fur, the wings black hackle points, the hackle yellow badger, and the tail of wood duck or mandarin. Being black and white, Ted called the fly the Coffin.

This past fall while fishing for salmon on the Margaree River in Cape Breton, my wife hooked and landed a 15-pounder on this fly. While we always think of it for New York and Pennsylvania waters, one never knows.

HACKLE POINT BLUE DUN: This is a variation of the standard Blue Dun, the wings being more durable than the split wing. This fly is particularly effective when tied in the smaller sizes.

RAY SMITH, PHOENICIA

RED FOX: One of the finest flies for all conditions after May 15 on all brown trout waters. Also excellent for rainbows. I consider it one of the best if tied properly. Have been tying this fly since 1915, but believe it was first tied by the Weatherbys of Englewood around 1900 and called *The Modified Cahill.* Sizes range from 8 to 18. *Wing:* wood duck; *Tail:* wood duck; *Body:* red fox and rabbit fur blended; *Hackle:* light straw color from buff leghorn rooster.

GINGER QUILL: Another excellent fly if dressed light and sparse. This is a smaller fly and should be kept so—on hooks 14 to 18. Excellent on days when fish are apt to be selective, during bright conditions, and on windy days on flat waters. A good late afternoon fly. Many people tie this fly well, but I like best—*Wings:* slate hackle points; *Tail:* light straw hackle; *Body:* peacock eye, stripped, bound with copper wire; *Hackle:* buff Minorca rooster, sparsely tied.

This pattern is much too old to discuss who tied it first.

MRS. DETTE

LIGHT CAHILL: Two more well known trout patterns than the *Quill Gordon* and *Light Cahill* would be difficult to name, particularly on Eastern streams. A dry fly fisherman who has not at some time used them would be the exception. Both are all season patterns, and take fish consistently when they resemble the hatch of naturals on the water. In addition, they often take fish on those days when a great variety of flies are hatching, none of which resembles these two patterns to any marked degree. I have never thought of having a "favorite" fly, being one of those anglers who likes to depend upon a half dozen or dozen standby patterns, carried in a variety of sizes. However, if I had to name a favorite, it would probably be the Light Cahill, preferably tied with a cream colored hackle and body. This I find more effective as the season advances. The conventional buff-colored Light Cahill would be my choice for early season. The Light Cahill is a taker, both with and without wings, and has the advantage of being easily seen on the water.

QUILL GORDON: While a real killer, there are times under adverse light conditions when it is practically impossible to follow this fly with the eye, making it hard to strike your fish on the rise. However, when light conditions are favorable for seeing it on the water, there is no more consistent fish-taker than this pattern. It is one especially known and used by anglers on New York streams, being the brain child of Theodore Gordon, who spent so many years of his life near Neversink, fishing, tying and writing of his beloved sport.

ART FLICK, WESTKILL

AMERICAN MARCH BROWN: This fly is tied to imitate the natural, *Stenonema vicarium,* known to many fishermen as the May Fly. Although to the human eye it doesn't look much like the natural, the trout seem to like it, which is the important thing. Inasmuch as it is the first really large fly to make its appearance, occurring in most of our streams, it usually gets the bigger trout interested in surface food.

GREY FOX VARIANT: If I had to pick one fly to fish through an entire season, this would be it. It works equally well in fast water or still pools. In heavy water, if properly tied, it floats better than any fly I know of, including those tied with deer hair bodies. I have taken more big trout on this than any other fly I have ever used. For small streams, a size smaller than illustrated works better. To be effective, the hackles must be stiff and without web.

The Little Hoosick, only three or four miles from its source

DEATH OF A STREAM

THE stream is the Little Hoosick, a small stream in Rensselaer County that relatively few people care about. But the significance of what has happened to it should not be underestimated.

Twenty years ago the Little Hoosick was one of the best trout streams in Rensselaer County. There are still trout in it and it is still stocked by the State, but you don't have to be a fisherman to see why the trout would now prefer to live somewhere else if they could. The stream is a sorry sight. Some stretches of it have been preserved, (showing, incidentally, what might have been done all along), but above and below these isolated sections there are sad expanses of baked and bleached gravel flats, collapsing banks, washed out fields, dead or dying trees, dredged and barren channels, wreckage and junk.

All this you can see from Route 22, the highway that runs through the valley of the Little Hoosick. Strictly as an object lesson, it's worth seeing; otherwise, no.

It is perhaps of only minor importance that another good trout brook has been virtually destroyed, although fishermen will realize that we can ill afford such a loss these days. It is of much greater importance that the stream in its present condition is a costly and dangerous liability; floods on the Little Hoosick have done damage estimated at about $400,000 in the past 20 years, and there's no money in the valley to pay such a bill.

The stream, fed by springs on these mountains, has a healthy beginning

But the death of this stream may be most significant for still a third reason. The Little Hoosick, like other streams in other valleys, is a dominant feature of the local landscape, and for people who live in the country their landscape

—the appearance of their country—is an extremely important aspect of their environment. The Little Hoosick is now a very depressing and also very obvious feature of the environment; what the ultimate effect will be, as the stream degenerates into a shabby gravel flat in front of the New Central School, remains to be seen.

MOST people blame the death of this stream on the flood. When they do this it's usually safe to assume that they're referring to the *latest* flood, although you can't be sure because there have been at least five bad ones in recent memory. Other people go a step further; they blame the floods too, but want to know why they come so often and why they do so much damage. Both good questions.

There are floods because the high hills of Rensselaer County catch a lot of rain and store a lot of snow. As a result, the normal channel of the Little Hoosick is hard put to it to contain the fast-moving load of water it sometimes has to carry. In other words, local geography makes for floods.

But geography does not explain why there are so *many* floods, or why they do so much damage. After all, plenty of streams in the Adirondacks and Catskills take a bigger load of water down a steeper gradient and through a smaller normal channel, and yet look pretty much the same afterward. The banks and channel get a good scrubbing, but recovery is quick.

Not so on the Little Hoosick. The scrubbing occurs, but the banks can't take it; they wash away, and after that the Little Hoosick channel and all, is where you find it. Recovery is doubtful.

This suggests that diagnosing the mortal illness of the stream is almost absurdly simple; the banks have been misused, and so have the hillsides that slope down to the banks. Although logging practices are partly to blame, both abuses stem mainly from what must appear as a misguided concept of agricultural economy, according to which pastures and crop lands are extended just as far as they can possibly be stretched—up as far as the woods and often into them, down right to the water in the stream. So, up on the hillsides, the vegetation that stores water and stops its downhill rush has been cut off or grazed off. And so, down by the stream, the tree roots that once held the banks in place are no longer there; they have been traded for a few extra feet of pasture or field. The next flood will show who got the best of that deal.

When this flood comes, there will

The upper waters are well protected by trees. This is a natural spawning ground for brook trout, which move downstream as they attain size

The picture at left was taken Dec. 30, 1949; the one at right, three days later. Mainly because of topography, the stream often floods

These banks can hold a flood, and did. The roots kept the soil and rocks from being carried away

These banks can't hold a flood, and didn't. Cattle have been pastured to the water's edge

One of many feeder streams that come in from the side hollows. The stumps at right were cut to make more pasture

Farther down stream is a stretch showing what reforestation can do

No trout here. Willows that held the banks and gave shade were cut

In only four or five miles the stream has become a dangerous liability rather than an asset. That's the Central School in the distance

probably be a general move in the valley to see what relief can be gotten from some outside agency. The prospects of such relief will not be good. The Flood Control Commission will probably point out that anything it could do in so small a watershed could not reasonably be expected to justify the expense —which would have to be borne by a lot of other taxpayers in a lot of other valleys. That would probably be the official answer. But the Commission could ask, with justice: If you suffer because you don't take care of your stream, why should the rest of the taxpayers foot the bill?

Or an approach may be made to the Conservation Department, to see if the Department will buy up the stream for public fishing rights and then go to work on fixing it up. No, the Department can't, not now anyway. It would like to help, but when it comes to spending the public's money the Department is obliged to make the best investments it can, and anybody can see that the Little Hoosick in its present condition is a poor investment.

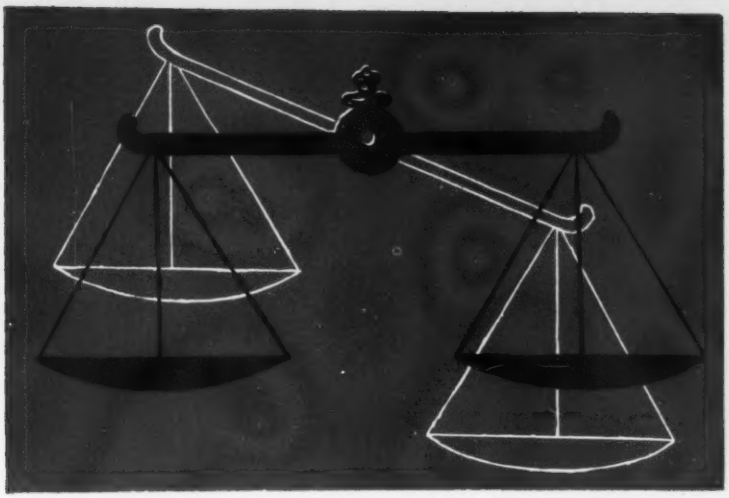
And so the solution of the problem reverts to the community level, reverts to the people who are interested in and affected by the Little Hoosick. In all justice, that seems to be where the problem really belongs, and the only level on which it can really be solved.

Because of the magnitude of the job and the almost certain discouragements to be encountered in trying to do it, the Conservation Department has been very cautious about recommending a program to restore life to the Little Hoosick; all too often such a project is undertaken with great enthusiasm, the enthusiasm wanes as the difficulties become more apparent and the results less so, and finally the project (and along with it, conservation and the Conservation Department) is dropped.

What is required to resurrect the Little Hoosick is first of all an education program. That sounds dull and academic, but there's no use in going to work on the stream when a farmer up on one of the tributaries is still cutting down bank-holding trees to "make more pasture", and a lot of farmers are still doing exactly that. Somebody's got to tell them. If everybody that's concerned with the problem understands it—well, winning that battle is winning the war.

Then the real work can begin. It will be a long, hard job of righting the wrongs that have been done the Little Hoosick. It will consist mainly of re-establishing the protective cover of vegetation that made the stream what it once was, and kept it where it once was.

—P. W. FOSBURGH



Legislation 1951

FISH AND GAME

THE bills mentioned below represent only a small fraction of the Conservation measures enacted by the 1951 Legislature. We have selected only those we thought of general interest. Even here, our comments suggest only the significance of the bills and not their legal content, so that the information printed here should not be construed as having the force of law.

Chapter 423: Extends until Dec. 31, 1954 present fees for citizen-resident hunting, fishing, and combined hunting and fishing licenses.

Chapter 511: Combines big game license (deer and bear) with buck-and-doe license (for taking deer of either sex in counties opened to such taking by Department order) and adjusts fee (formerly $2 for each license; now $2.25 for all big game.) Brings the fee into line with those for citizen-resident trapping, hunting and angling licenses (each $2.25); merger will not result in loss of data on deer take or any diminution of control needed by the Department in managing the deer herds.

Chapter 510: Incorporates bear with deer law; big game licensees now have only one section to examine. So-called Annual Deer Bill for 1951 continues open season for deer and bear in Adirondacks Oct. 25-Nov. 25; sets *new seasons* in Catskill and Eastern area, Southern Tier, Central and Western counties, and open parts of Monroe and Erie counties, Nov. 22-Dec. 6. In Delaware. Greene, Sullivan, Ulster counties it extends bear season through Dec. 15. Intervening Sundays for taking deer excepted in Southern Tier, Central and Western counties and those open parts of Monroe and Erie.

Chapter 123: Makes fines and penalties for taking deer out of season identical with those provided for deer jacking; (maximum: $500 fine and imprisonment for one year).

Chapter 512: Re-enacts until Dec. 31, 1954 law authorizing Department to declare open season on deer of either sex in 25 of the western counties, and enlarges the area where this may be done to include all the State except the Adirondacks, Counties of Columbia, Washington, Dutchess, Putnam, Sullivan, Ulster, Westchester.

Chapter 182: Provides no open season or bag limits until July 1, 1955 on varying hare and cottontails except by order of Department (empowered in 1950 to fix only bag limits). In other words, Department is empowered to fix seasons and limits, as with grouse, etc.

Chapter 225: Members of armed forces need only to be in uniform (or have with them furlough papers, orders or identification tags) to fish and hunt (except deer and bear) *without licenses*; extends law until July 1952; they can buy citizen-resident big game license for same fee as citizen-resident.

Chapter 509: Enlarges zone in Erie County contiguous to Buffalo in which deer hunting is prohibited: (will not result in any appreciable loss of hunting opportunities, however.)

Chapter 507: Repeals section on possession of carcasses of birds (except migratory birds), fish and quadrupeds after close of open season therefor. Permits possession, transportation of wild game birds (other than migratory) and quadrupeds (except deer and bear) during open season and for 60 days immediately following. Permits possession of: deer and bear—during season and until March 1st following; fish—any time, except trout, black bass, muskalonge, salmon (these until March 1st following). Department may allow extension not over 60 days, permit to be applied for 5 days prior to end of original possession date; even with permit, deer and bear may not be possessed beyond August 25.

FORESTS

Chapter 6: Conservation and Finance Law amended to provide for removal, use or sale of down or seriously damaged trees from the Forest Preserve, the work to be done under supervision of a technically-trained forester. (Emergency law, see previous issue.)

Chapter 151: Permits Department to charge for certain facilities and appurtenances provided by State for public use at Lake George Beach, Warren County.

Chapter 239: Authorizes Department to restrict use of State lands by public, and with consent of owner, to extend application of regulations to private lands whenever Department determines a fire hazard exists.

Chapter 154: Authorizes Governor to close woods to public use whenever forests of State are endangered by fire. (Heretofore his authority was restricted to periods of drought.)

Chapter 656: Puts fire regulations on private lands within Fire Towns on same basis as those within Fire Districts, providing uniform protection.

Chapter 689: Authorizes Department to extend to Fire Districts the top-lopping requirements now in effect within Fire Towns. (Helpful in reducing fire hazard on blow-down areas in Adirondacks.)

FAUNA

PHEASANT

LIFE HISTORY

LIKE the white man, the ring-necked pheasant (*Phasianus colchicus*) is a recent addition to the fauna of North America. The species is of Asiatic origin and the present stock is a hybrid, mainly involving three subspecies from different parts of the Orient.

In New York, following liberations begun during the latter part of the last century, the birds had multiplied until there were open seasons in a number of counties several years before the advent of the first State game farm in 1909. Since that time the pheasant has become well established where the environment is suitable and must now be considered a virtual "native."

The pheasant is a bird of relatively open cover and in America has been most successful on the better agricultural lands of the northern states, reaching its highest abundance in eastern South Dakota. In New York the most productive section is the Lake Plains from Syracuse to Buffalo. Moderately productive range extends southward to the Allegany Plateau and also includes the Finger Lakes region, the Mohawk-Hudson valley and certain parts of the Susquehanna and Chemung valleys.

The pheasant is polygamous and sex ratios of several hens to one cock are the rule. It is a ground nester, laying an average of 12 eggs per clutch. Laying usually begins during the latter part of April. Incubation, which is not begun until a clutch is complete, takes 24 days. Broods begin to appear toward the end of May. In a normal season four or five chicks per brood survive until fall.

During the winter pheasants congregate in flocks, preferring the vicinity of swales and cattail marshes. At such times the two sexes tend to form separate groups which break up with the onset of the breeding season.

Pheasant abundance in New York, after suffering a few minor set-backs, appears to have reached its peak during the years 1938–40, when the fall population is estimated to have ranged between two and a half and three million birds and the annual number of cocks bagged about half a million. Following that a severe decline in abundance took place, not only in this State but elsewhere. Recovery began in 1948 and is continuing.

It appears that the pheasant, after taking over a relatively unoccupied niche in the environment of the State, has become subject to population behavior similar to that of native species. Such behavior is characterized by recurrent fluctuations in abundance. It reflects the fact that the general carrying capacity of the range has been reached and that, while better years will alternate with poorer ones, the average level may be expected to shift only with changes in the basic quality of the environment.

—ROBERT W. DARROW, *Supervisor of Game Research*

PROPAGATION

THE first introductions of the pheasant into the State were made by private individuals. As the birds rapidly increased in numbers, particularly in the Lake Plains region, it appeared desirable to stock them in nearly all counties of the State.

A modest beginning was made in 1897 with a dozen birds as breeders at the Pleasant Valley Fish Hatchery near Bath. As the reproduction of the released birds in subsequent years exceeded expectations, the Forest, Fish and Game Commission recognized the need for a game farm.

The first game farm was established in 1909 at Sherburne and went into production the following year. At that time there was an open season on pheasants in six of the western counties. The bird was extremely popular with the sportsmen, and the visions of an abundance of pheasant throughout the State tended to compensate for the disappearance of grouse and woodcock—which were very scarce at that time.

Emphasis during the early years was on the production of eggs for distribution. Each applicant was provided with from one to three clutches to be set under broody hens. This was a successful program, as broody hens were readily available from low producing farm flocks. A great many reports were received indicating that the birds had done well and that flocks had increased in the years following the initial releases.

In subsequent years many of the chicks hatched on the game farm were sent to the consignee with the hen "foster mother." Many of these were set free with the hen in suitable cover to fend for themselves. Everyone was impatient —more and more birds were desired in new areas of the State, and additional game farms were established.

But a point was eventually reached where this type of stocking seemed to have little if any value. As laying hens, bred scientifically for higher egg production, began to lose their broody characteristics, good hen "foster mothers" were increasingly difficult to procure. And in the '30's the Machine Age caught up with pheasant propagation; incubators and brooders almost completely replaced the hen.

This age of science has taught us much in regard to the requirements of the pheasant. In fact at the present time more is known about the nutritional needs of the pheasant than of man. Game research has within recent years provided factual answers to questions that were hotly debated during the last decade. Research, together with improved game management techniques, have put pheasant stocking on a scientifically sound basis. The role of pheasant propagation now is to produce birds of top quality to stock the depleted coverts that will support them.

EARL R. HOLM, *Superintendent of Game Farms*

RESEARCH

YEARS before game research as such existed in New York, the ring-necked pheasant had established itself as a popular game bird. Early efforts to preserve and increase pheasant numbers centered on continued stocking and the regulation of seasons and bag limits. While these practices were developed on the basis of what was then known of the bird, it soon became apparent that a sound and flexible management policy would require more detailed information. Accordingly, research was undertaken to obtain the necessary facts.

The early phases of this work involved to a large degree an investigation of the life history of the species in New York. Pheasants were observed, throughout the year, on several study areas. Food and cover requirements, nesting and rearing success, causes of mortality, and many other factors were carefully recorded. This research provided basic information for a good working knowledge of the bird.

After the major life history chapters had been pieced together, this aspect of pheasant research was reduced and emphasis was shifted to investigating pheasant management problems. The drastic decline in pheasant numbers during the early '40's accelerated this change. Answers had to be found to practical problems of immediate concern to both the sportsmen and the Department.

"Should we feed pheasants in winter?" "How important is disease?" "How can we inventory the pheasant crop in time to establish the hunting season?" "What about the effect of fox predation?" "How can we get the most for our money from pheasant stocking?" These are just a few of the many questions on which recent pheasant research has been focused.

The answers to most of these questions again must be sought in outdoor laboratories—in the fields and swamps and hedgerows where pheasants live. Data on many phases of the work can be gathered only once a year at the proper season. For example, in a study of hunting pressure, we are limited by the length of season; if we cannot obtain enough data in one year, we must wait for another year to roll by before more can be obtained. Again, even when results of an experiment seen clear cut, often it must be repeated.

Thus, the rate of research findings seems slow to those impatient for immediate action. Certainly it is true that checking and rechecking delays translation of research findings into management practice, and in this connection research workers show up as poor gamblers. Perhaps they are too reluctant to make a recommendation until their findings seem conclusive. On the other hand, maybe that's good business; a major change in management policy costs a lot of money, and mistakes cost even more.

—CHARLES I. MASON, *Game Research Investigator*

MANAGEMENT

SPEAKING broadly, pheasant management in New York can be broken down into three phases. These can be classified as protection, distribution of stock raised at the pheasant farms, and provision for food and cover.

Protection has been accomplished through legislation, enforced mainly by the Department. An open season, whether for two days or a week, is but a very slight relaxation in the year 'round protection given this bird, and even during the open season hunting is limited to cock birds—which, in a polygamous species such as the pheasant, should have little effect on productivity if the take is not excessive.

As a further measure to assist the pheasant in making a come-back on suitable range, the Department recently revised its stocking program. Preliminary to this revision, the District Managers surveyed and mapped the State's pheasant range, dividing it into three categories. The first-class range was mapped as the area supporting substantial wild populations, mainly through natural reproduction—in other words, naturally good pheasant country. Intermediate range was plotted as that which had supported fair pheasant population in the past, but on which the birds had largely disappeared. Non-productive range never had produced appreciable pheasant populations.

With the survey completed, it became clear that the most important role of stocking was to supply supplementary breeding stock for the best range, when the wild population on that range was found to be at low ebb. The stocking program under which we now operate was drawn up accordingly, with the idea of shifting emphasis to other areas as recovery occurred in portions of the better range. As developed, this program provides for breeder packets in the ratio of four hens to one cock to be distributed in first-class range. Surplus cocks are distributed in intermediate and first-class range, while stocking done formerly in non-productive range has been discontinued. Actual liberations are made by Department personnel on the best unposted release points.

Finally, the Department in 1948 started a long-range farm game habitat improvement program. This is the program known as PR-48-D. Particularly as cover restoration techniques are refined, environmental conditions for pheasants should be improved. Through this program the carrying capacity of the range, which is the ultimate cornerstone of all game abundance, will be built up gradually.

A closing note: It should not be overlooked that the full support and efforts of sportsmen and landowners are needed behind the pheasant management program, if we are to rebuild and maintain high populations of this bird.

—ARTHUR W. HOLWEG, *Supt., Game Management*

WITHIN AND WITHOUT THE BLUE LINE

"And incidentally, just what *is* this Blue Line you people yap about so much? What's it go around—the Adirondack Park, or the Forest Preserve? Or are they both the same thing? If they aren't, is the Forest Preserve inside the Park, or is it the other way 'round? Or doesn't it really matter anyway?

"In short, what gives?"

WE'VE never had a letter exactly like that, but we've had a lot of letters that add up to approximately the same amount of confusion. It seems time to do some straightening out, and probably the best way to begin would be with some definitions. Then we will go on to give you some history which proves that everything is subject to change, including definitions.

Blue Line: The line, as established by law, designating the boundaries of the Adirondack and Catskill Parks.

The Adirondack or Catskill Park: All lands and waters, both State and privately-owned, within the respective Blue Lines.

The Forest Preserve: Lands owned by the State (outside of village and city limits) within the Counties of Clinton, Delaware, Essex, Franklin, Fulton, Greene, Hamilton, Herkimer, Lewis, Oneida, Saratoga, St. Lawrence, Sullivan, Ulster, Warren and Washington. In other words, State-owned land in the 16 Adirondack and Catskill counties, whether inside or outside the Blue Lines. Specifically excepted are State-owned lands (prison lands) in the Towns of Altona and Dannemora in Clinton County.

It requires some sober history to explain how all this came about. Bear with us.

Although the Forest Preserve was actually created in 1885 (when some 715,000 acres acquired at Comptroller's tax sales were set aside by statute), the groundwork for its establishment was laid earlier. In 1872 the Legislature appointed a Commission of State Parks, the function of which was "to inquire into the expediency of providing for vesting in the State, the title to the timber regions within the Counties of Lewis, Essex, Clinton, Franklin, St. Lawrence, Herkimer and Hamilton, and converting the same into a public park."

Former Governor Horatio Seymour was chairman of this Commission, and serving with him were Verplanck Colvin, who had been in charge of the Adirondack Wilderness Survey, and Franklin B. Hough, a prominent pioneer of the National Forestry Movement. The Commission submitted a report to the Legislature in 1873, recommending the establishment of a State Park in the Adirondacks. The objectives outlined in the report were mainly the protection of watersheds and the safeguarding of the State's timber supply as a measure for political economy.

The report was filed for action, and nothing was done. The idea of an Adirondack Park, however, had been born, and during the next decade the increasing damage by forest fires, the extensive lumbering operations which penetrated deeper and deeper into the Adirondack wilderness, and the continued stealing of State-owned timber aroused public interest, if not alarm.

What really brought the situation to a head was a proposal of the Adirondack Railroad Company to extend its lines into the Adirondack wilderness in order to facilitate cutting operations on some 500,000 acres of land which had originally been granted by the State to the Saratoga and Sackets Harbor Railroad Company for five cents an acre. This threat to the heart of the Adirondack wilderness resulted in the passage, in 1883, of a law prohibiting further sales of State lands in the Adirondacks. The same law created a Senate committee to make further investigations into the need for additional legislation to assure adequate protection of this big area.

The following year a commission of experts, under the chairmanship of Dr. Charles Sprague, was set up to formulate a policy that would assure forest preservation within the Adirondacks. As a result of the report submitted by this commission, the Act of 1885 was passed, creating the Forest Preserve.

This law was essentially protective in nature. It did not include any provision for the sale of timber, and the leasing of lands for any purpose was specifically prohibited—as indicated in the following extract from the law: "the lands now or hereafter constituting the Forest Preserve, shall be forever kept as wild lands. They shall not be sold nor shall they be leased or taken by any person or corporation, public or private."

To administer these lands, the Act of 1885 established the Forest Commission, forerunner of the Conservation Department. The Forest Commission promptly found itself confronted with several serious administrative problems. One of them involved some 200 squatters, whose occupancy of State lands offered a problem which the Commission thought could be most easily solved by granting the squatters campsite leases. So, in response to a recommendation of the Commission, the Legislature of 1892 granted authority to lease tracts of not over five acres for periods not to exceed five years. The granting of such leases only served to increase administrative troubles by leaps and bounds.

BUT the main problem was the pattern of State ownership. State holdings, totaling about 700,000 acres, were scattered in blocks of varying size throughout the Catskills and Adirondacks. This made it almost impossible to develop a land acquisition program which would culminate in a compact State ownership. In order to overcome this obstacle and formulate a sound policy of land acquisition, the Blue

Line was drawn and the Adirondack Park created in 1893. It was the intention of the State to acquire all lands within the Blue Line.

THIS Act was a revision of the Law of 1885, but retained much of its language. It did not alter the status of the Preserve but provided that the Park should be "preserved, maintained and cared for as land opened for the free use of all the people, for their health and pleasure, and as forest lands necessary for the preservation of the headwaters of the chief rivers of the State, and as a future timber supply, and should remain part of the Forest Preserve."

This law of 1893 further granted the Forest Commission authority to purchase land, to sell and exchange land in the interests of consolidating public ownership, to lease camp and cottage sites, and finally, to sell spruce and tamarack lumber over twelve inches in diameter, and poplar as specified by the Commission. The moneys obtained from such sales were to be used for the purchase of additional lands within the Park.

Although the Adirondack Park was originally created primarily to facilitate land acquisition, the old reports intimated that the purpose of the Park was "to secure a more efficient plan to preserve the forests, and that the term was chosen because it had a great appeal to public sentiment." Evidently the term "park" became well fixed in the mind of the people, because in the next few years there was considerable agitation against the cutting of timber within the Adirondack Park, and in 1894 a constitutional amendment was approved by the people which prohibited the cutting of timber on the Forest Preserve.

The language of this amendment was the same as now appears in Article 14, Section 1 of the State Constitution; it indicates a sharp reversal of the policy expressed in the law of 1893. Not only did it prohibit the cutting of timber and the leasing of campsites as provided by the law of 1893, but upon its face, it was a declaration of policy that the public forests should forever remain a State wilderness, with the perpetual prohibition against the use of any wood products grown on it.

Over the years the term "park" as applied to the Adirondack and Catskill regions (the latter Park was established in 1904) has come to mean all the State and privately-owned lands located within the respective Blue Lines. The boundaries of the parks have been extended from time to time to include a major portion of the Forest Preserve, so that now only scattered parcels of land comprising the Forest Preserve lie outside the Blue Line. But the original intention of the State—to buy all lands within the Blue Lines—was abandoned long ago, when the necessity for private holdings—on which hotels and other facilities to accommodate the public could be built—was recognized. Present State ownership within the Parks is about 40 per cent of the total area.

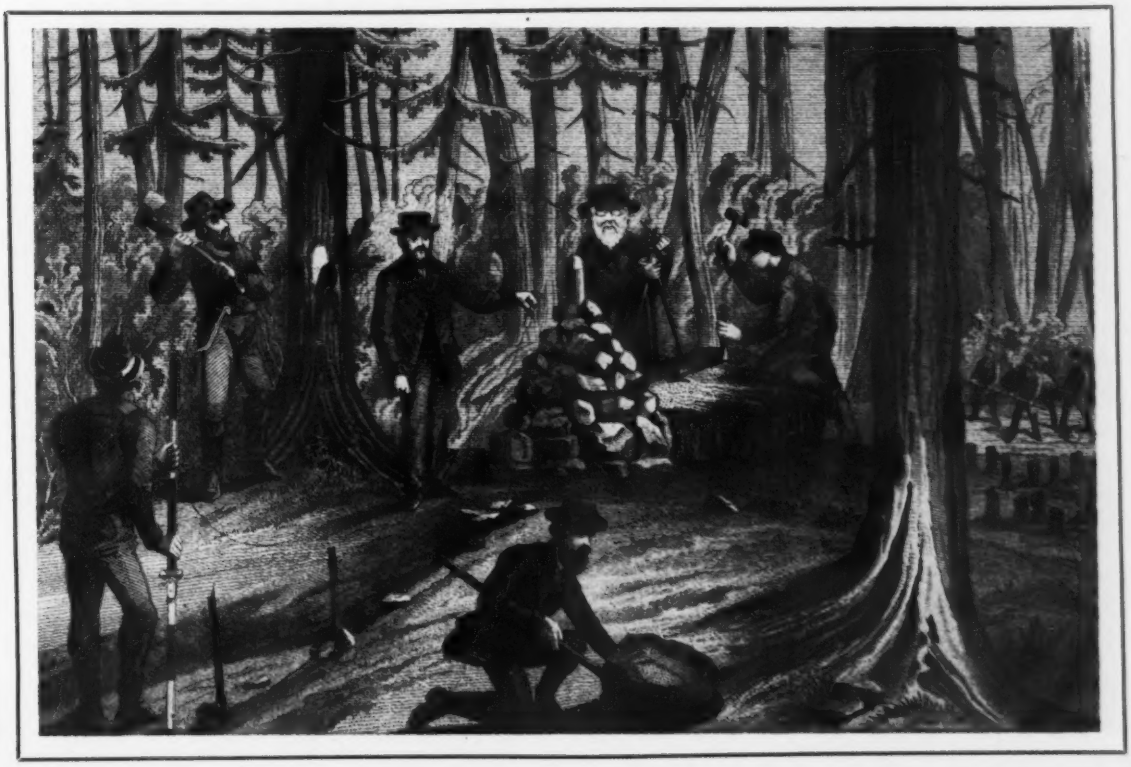
Although some modifications have been made for such purposes as water storage, highways and ski developments, the legal status of the Forest Preserve has remained substantially unchanged since 1893.

THE Forest Preserve includes 2,178,000 acres in the Adirondacks and 230,000 acres in the Catskill mountain areas. There is no other similar area of wild land in public ownership in the entire Northeast. Its acquisition has been accomplished for approximately $200,000,000—a surprisingly small expenditure for the health and recreational values it renders.

In fact, for a capital investment of less than a dollar and a half per capita on our present population, the Forest Preserve is really something.

—A. S. HOPKINS,
Director, Lands & Forests

"THE GREAT CORNER" where the Macomb and the Totten & Crossfield purchases met; from Verplank Colvin's notebook.



THE DAM FARM

by Dr. Paul Dowd

The dam *The farm today (top)* *For wildlife* *Reforestation*

THERE are golf widows, fishing widows and hunting widows, but my wife says she is a farm widow, which may account for the way she spells the word "dam" when we speak of the "Dam Farm." But I have only Wednesday and Saturday afternoons and Sundays off, and every man knows there's a hell of a lot of work to keep a farm from getting lost.

When I purchased the farm in March 1943, I took my friend Fred Vogelgsang up to inspect it and give me his advice. Fred is the Ag. teacher in Oxford. He took soil samples all over the farm and gave me the ph reading with instructions for each field. The entire farm ran ph 6 to 6.2. Now it is up to ph 7 to 7.2—which is neutral and just about right for most crops. After I had paid my money the former owner said it was only fair that I should know that most people around Oxford called this place "Oklahoma." I have never been able to find out why as I never struck oil. But I did find that you could plow about 20 feet without sinking your tractor and plows in wet soggy holes.

That year I learned and invented a lot of new words.

That same year I got a drag line and a bulldozer to dig a small pond and to make some nice winding curves in the brook that ran in front of the house. The pond was too small and silted in (it did raise nice trout) and the curves in the brook would not stay where I put them when high water came.

Taking the upper field, I put on about three tons of lime to the acre and 400 lbs. of superphosphate, plus all the hen manure and litter I could find, plowed it under and sowed it to winter rye. The next spring, we plowed the rye under and when it dried out so we could get on it, planted it to oats, ladino, alsike, clover and timothy. When we cut the oats, Jesse Loomis, who helped me and did about all of the plowing, wanted to know what he should do with the bags of weed seeds we harvested. We did get a nice catch of new seeding and the following year cut 10 tons of excellent hay on two and a quarter acres. When I told our Supervisor, John Fitzgerald, the tonnage we cut, he said he never called a man a liar but he could think it. He came up later and changed his thoughts.

Game was scarce and yet there seemed to be good cover. I finally called in the Soil Conservation Agent from Norwich and then things began to move. Jerry Owen, who had charge in my section, after inspecting and sampling told me the soil was class "something or other." I asked him what that meant in my language, and he said that meant it wouldn't grow a damn thing. After thinking about that crop of hay we had raised, I got stubborn and asked him to lay out a program and see if he could make a liar out of himself. Jerry really went to work, and so did I—back to my office for a few extra hours a week to raise the cash to keep the wheels turning.

Jerry put in two diversion ditches, one over 700 feet long and another over 300. And then damned if he didn't talk me into putting in a real pond—8 feet maximum depth and three quarters of an acre water surface. I spent a little more time in the office. When Jerry got through I was amazed and really grateful for his services. The fields dried up and the pond reduced my fire insurance, provided a source of water supply for my cattle, raised trout and was a swell place to cool off in when it got hot. Even Jesse began to get enthusiastic when he didn't have to pull out of sink holes every few feet. I had made a dicker with him, to help me with some of my own projects and to work the fields in exchange for hay.

AS each field was tackled, we followed Vogelgsang's advice — rye, lime, superphosphate and manure. We picked rocks and stones until I thought my half-ton pick-up would collapse. It's

Farm pond *The old days* *For wildlife*

great exercise for your relatives and friends and it was a standing order, no work, no eats. They all ate.

One field in particular was really bad. It was full of rocks and cradle-knolls. I put the bulldozer to work and leveled it. Jesse just about blew his top when he came to plow it. The hard pan had a soil covering of about two inches. He plowed it in two different directions and I learned some new and different words while he was doing it. After plowing in the rye, the following spring we let it lay until about July 1. Then I started to drag it with disc and spring tooth harrows for an entire month. Two of my brothers-in-law almost came to blows as to whose turn it was to run the tractor and harrow.

It was seeded in August to ladino, alsike, red top and timothy, and became one of the best hay fields on the place. This last summer we produced about 44 tons of excellent hay on about 11 acres. I have various State men brought in by Fred Emmick, head of the county agriculture division, to be shown what could be done with submarginal land.

The humus in the soil has gradually been built up with compost and sheet composting until now you can really turn a decent furrow. Jesse decided he would like to grow about three acres of corn on a piece that I didn't think was ready but I told him it was his funeral and to go ahead. Fred Emmick brought more people to see it. Just as it was about ready to harvest, a high wind hit it and this time Jesse *did* blow his top. He had to cut it all by hand.

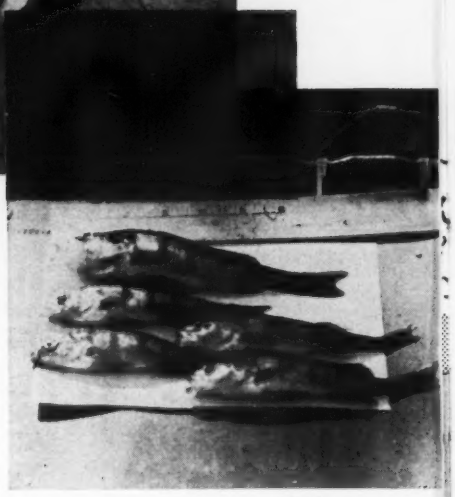
While the fields were being built up, I had my own pet projects. The Soil Conservation fellows supplied me with arrowwood, high bush cranberry, coralberry, bayberry, hazelnut and Tartarian honeysuckle for a berry-bearing hedge around most of the fields, as well as basket willows for the banks of the brook—especially on my nice winding curves. All the shrubs were planted in a border that I had previously plowed and harrowed, and after three years are beginning to bear fruit. They also supplied me with blight resistant chestnuts as an experiment but the winters are too severe for that particular strain. I'm still looking for some that will take 35° below. Each year I plant sunflowers, wheat or buckwheat, Martins milo and corn which I do not harvest. I signed up with the Forest Practice Act. Charlie Baker, our District Forester, has done some thinning of the reforestation that nearly surrounds my fields, and with this thinning, the wildlife borders, the fertility of the improved fields and the unharvested crops, I can see a great improvement in the game crop. "Wildlife habitat" really pays off.

This next year I have got to take some of the curves out of the brook and also drain my pond. I thought I was being real smart by putting a few minnows in my pond to help feed the trout. The cussed minnows have multiplied so fast and eat up so much of the feed that the trout do not have the growth they should. I'm going to get every last minnow if I have to buy a barrel of rotenone to do it. When I think of the whole week that Ed Miller, my grouse hunting companion from Williamsville, and I spent building the dam for my first pond so as to keep out everything but trout, I almost hesitate to tell anyone I deliberately put minnows in the new pond.

EVERY fall a bunch of us gather at the farm for a week of bow and arrow hunting for deer. We've all had shots and have seen plenty of deer but somehow the blooming arrows seem to have kinks in them or there's too much brush in the way. Anyway, we're still trying and we have lots of fun. This and a lot of other things make me feel that the few extra hours per week in the office were well worth while.

In fact, I'm damned if I can see why my wife spells DAM the way she does.

after



before

trout restoration in the adirondacks

ut restoration program in- by the Conservation De- t in 1950 has as its ob- eclamation of former trout ed on State land and now y species of fish unsuitable to these waters. Various chemical compounds are being used in an effort to completely eradicate existing fish populations. Then, when the body of water has lost its toxicity (i.e., when the killing effect of the chemical has disappeared), it is planted with trout. Rotenone is the basic "killing agent" of the several chemical compounds.

Fishermen's bull sessions invariably come around to the reasons why fishing for certain species of fish in certain lakes and ponds has declined. Among many reasons mentioned are lack of hatchery stocking, over fishing, weather conditions, overstocking, chemical changes and depredations by furbearers. However, the introduction of non-native fishes, particularly in Adirondack waters, has caused a decline in fishing for certain species and in many instances has provided little if any fishing for the introduced species, and these unwise stocking ventures can go to the head of the list in any one's folder on Reasons for Poor Fishing.

Less than a hundred years ago most Adirondack lakes and ponds and many adjoining lowland waters contained only two species of game fish; the lake trout and the brook trout. Usually associated with these two species were several species of minnows, suckers, bullheads, sunfish and in some waters whitefish. But during the latter part of the 19th Century and the early 20th Century there were mass introductions of various species of non-native fish into these waters, until today there is scarcely a single large body of trout water open to public fishing that retains its original native fish population. And these introductions are still going on! Since 1945, fishermen have witnessed in the Adirondack area two large brook trout-lake trout waters become inhabited with yellow perch and three large, famous brook trout lakes turn up with yellow perch. The introduction of yellow perch into Cranberry Lake, probably New York State's most famous large brook trout water, is only the most catastrophic introduction in the past decade; many smaller lakes and ponds have suffered a similar fate in the past few years. Undoubtedly, the earlier introductions of non-native species were motivated by a desire for a variety of fishing. In any case, there was little understanding of the havoc such introductions could cause.

A fundamental principle of fisheries management may be stated this way: The poundage of fish produced in a body of water will be shared in some proportion by the various species in-

habiting it. Therefore, when a new species of fish is introduced in a body of water it is not usually possible to retain the poundage of fish already present and reap a surplus in poundage of the new species. Rather, a general readjustment takes place in the water and one or more of the native species of fish produces less poundage.

Adirondack waters are generally classified as cold and rather unproductive. They are best adapted for producing fishing for their native species. This is particularly evident in smaller ponds where the native species disappear completely because of introductions, and where very poor (if any) fishing is to be had for the introduced fish because of stunting. It has been found that the presence of yellow perch in smaller native brook trout ponds generally causes the disappearance of the brook trout. In larger bodies of water the yellow perch cuts seriously into brook trout production and also affects lake trout production. Similarly, other species of warm water fish affect brook trout and lake trout production in varying degrees. For example, the pike-perch is a serious competitor of lake trout and has apparently caused its disappearance in several lakes.

Fortunately, in many larger Adirondack lakes excellent fishing is to be had for some of the introduced species of warm water fish. While this fishing has been provided at the expense of trout protection and their native associates, these waters are still providing sport for many. The situation is less fortunate, however, in many medium and small-sized ponds.

In the smaller ponds, in fact, the situation is most acute. Here, there is not only the disappearance of the trout to contend with, but practically all of the introduced species, including such prize game fish as northern pike, pike-perch, smallmouth bass and pickerel, are prone to stunt or grow extremely slowly and so provide no fishing at all. In addition, several species of introduced minnows have seriously affected trout production in smaller ponds due to competition for food.*

The accompanying photograph of yellow perch from a 15-acre pond in Fulton County (poisoned in 1950) is a typical example of what happens as the result of introduction of non-native species. No perch in this photograph weighed over one and one-half ounces and practically all of them were extremely emaciated. On the other hand, look at the photograph of brook trout taken from a 33-acre pond in Hamilton County that was reclaimed in 1948. The picture was taken in September 1950, and shows what fingerling stocking in 1949 provided in the way of fishing a year later. Prior to reclamation this pond offered indifferent fishing for five species of introduced warm water fishes; brook trout had long since disappeared.

One of the misleading characteristics of introduced species is that for some years after first being introduced they will often provide good fishing. Evidence of this is a 75-acre natural brook trout pond that had smallmouth bass introduced into it about 30 years ago. Good bass fishing was enjoyed for some years. Many fishermen bemoaned the loss of the brook trout, but to others the bass seemed like a satisfactory swap. However, bass fishing declined steadily, and in 1948 and 1949 there was no record of a legal bass being caught. A biological survey of this pond disclosed an extremely large population of bass, most of them under 10 inches and the majority of them old and stunted. Five hundred forty-six of these bass were examined and 18 were found to be legal! Of the 18 legal fish none was over 10¾ inches! Undoubtedly the yellow perch is the species most wide spread and injurious in situations of this type, but other non-native species may also be serious offenders.

THE trout restoration program is at present particularly concerned with reclaiming these smaller former trout ponds; only after the smaller headwater lakes and ponds have been reclaimed is it generally feasible to poison the larger bodies of water downstream. In this connection, it should be pointed out that one of the most unfortunate features of the introduction of a fish into a body of water is the fact that many other waters, both upstream and down, are vulnerable to infection over a period of years. Many remote chains of lakes have undoubtedly become infested with yellow perch due to its introduction in just one lake in the chain.

We don't want to give the impression that there is nothing to be gained by introducing new species of fish into carefully selected bodies of water. Nevertheless, the fact that many waters in the Adirondacks have been ruined by misguided stocking or unauthorized transfers can hardly be overemphasized. In a single Adirondack county in which three ponds were reclaimed last summer, yellow perch were reported for the first time in four other trout ponds. Need we say more?

THE chemical most commonly used in pond reclamation work at present is rotenone. Extracts from various plans containing rotenone were being used for capturing food fish by natives of many tropical and sub-tropical regions long before the advent of the white man. Natives of Australia, Oceania, southern Asia, tropical South America, southern North America, Brazil, Sumatra, and other regions all used rotenone-containing plants for capturing fish. Following the practice of the natives, various fisheries investigators have used rotenone for the same purpose.

Spraying rotenone, and (below) a barrier dam to prevent re-entry of undesirable species of fish

Rotenone is probably best known to most people as a widely used agricultural insecticide. Various plants of the family *Leguminosae* scattered throughout the world have been found to contain this chemical, which is clothed with the empirical formula C_{23} H_{22} O_6.

Rotenone in three different forms has received popular usage. Powdered rotenone was most widely used in the earlier work and is still employed to a considerable extent today. The disadvantages of this form are that it has to be mixed with water in most methods of application; sometimes it proves irritating to the skin of workers; it also involves more handling than other forms.

Emulsifiable (liquid) rotenone has in recent years appeared on the market and is very popular among workers at the present time. It does not seem to be irritating to the skin, involves no mixing, and is more easily handled than the powder. Although it is more expensive than the powder, the lesser amount of labor required to prepare it for use can well narrow the price differential between it and the powdered form. The third form of rotenone is a wettable paste which has not yet been used very extensively.

Several methods of application have been used, from towing bags of the powder to spraying by plane. Today spraying—either with hand pumps, centrifugal pumps, or other types of gas engine-driven pumps—seems to be most popular, although the airplane has been used in at least one state.

Various conflicting claims concerning the efficiency of rotenone compounds are to be found in the literature. Some workers have found that rotenone apparently does not effectively penetrate the deeper, colder waters of a pond when applied upon the surface. To overcome this problem various methods have been perfected to either pump or siphon the chemical down to greater depths. In any case, rotenone is more effective in warm than in cold water, in acid than in alkaline water, and in waters that have a minimum of suspended materials.

DIFFERENT species of fish have different abilities to withstand the effects of the poison. Bullheads are much more resistant than other fish and often take a day or two longer than other species to succumb. In fact it has occasionally been found impossible to eradicate bullheads using normal concentrations of rotenone.

Rotenone does not actually poison fish. Recent fisheries workers have found that suffocation takes place due to the constriction of blood capillaries in the gills. This explains why the natives of tropical climates can eat the fish they capture with rotenone-containing plants. Rotenone used in the concentrations applied to reclaimed waters is not injurious or harmful to mammals.

DURING the summer of 1950 seven ponds on State land were reclaimed in the Adirondacks. All were headwater ponds having at most very small inlet streams. Surface area of the ponds varied from four to 50 acres. The maximum depth of the deepest pond was 55 feet. All seven of the ponds were former brook trout waters that had had various species of non-native fish introduced into them throughout the years. The species of introduced fish were: ponds, 1, 2 and 3, northern pike; pond 4, yellow perch; pond 5, yellow perch and pickerel; pond 6, yellow perch and smallmouth bass; pond 7, yellow perch, smallmouth bass and largemouth bass. It was necessary to construct barrier dams on the outlets of four of the ponds to prevent re-introduction of undesirable fish.

Very poor fishing existed in these ponds prior to poisoning, although fishermen and local fish and game clubs reported good to excellent brook trout fishing back in the days when the ponds retained their native fish populations. Poisoning revealed that ponds 1, 2 and 3 contained a few northern pike which were slow growing. The yellow perch in pond 4 were badly stunted. In pond 5 the yellow perch were emaciated and stunted and the pickerel were few and slow growing. In pond 6 the yellow perch were stunted and legal smallmouth bass scarce. Some yellow perch attained a fair size in pond 7, but both species of bass were stunted.

Before the actual poisoning of a pond takes place, a good deal of preparatory work is necessary. A complete biological survey of the pond is generally needed. The survey tells among other things, whether the pond is suitable for trout today and what the growth rate of the present fish population is. As most of the rotenone products are applied at the rate of one-half to one part per million by weight, complete soundings of the body of water are necessary to compute the amount of rotenone to use. The surface area of the pond has to be known. All inlets, visible springs, seepage areas, and swamps are charted. Methods of draining swamps or lowering the lake level are investigated.

When this information has been gathered and the amount of rotenone computed, all that remains is to get the materials and equipment to the pond and poison it. Only one of the seven ponds reclaimed in 1950 was accessible by automobile. The remaining six ponds varied in distance between one quarter of a mile to two miles by trail. This means that rotenone (700 pounds), boat, outboard motor, pump, gasoline, tools, etc., had to be toted up to two miles before hostilities could be started. Assistance from members of fish and game clubs, Game Protectors and Forest Rangers lightened this laborious task considerably. After a pond has been poisoned, fish in cages are suspended in it from time to time to find out when the toxicity has dissipated. When dissipation occurs, the pond is stocked with the required number and size of trout—the stocking depending on the individual body of water.

Developments from these projects are not always entirely as expected. Protectors Benoit and Emperor report that a fisherman went fishing with live minnows in pond 7 (smallmouth bass, largemouth bass, yellow perch) several weeks after it had been poisoned. The angler, of course, was unaware of the fact that the pond had been poisoned. Several minutes after lowering his first minnow into the pond all activity ceased on the end of his line. Pulling in the minnow, he found it was dead. Several more minnows in succession were taken from the minnow bucket, but they too proceeded to die in several minutes. Finally, thinking that the water must be getting stale in the bucket, he emptied the water and refilled it with lake water, whereupon the remainder of his minnows rolled over and died. One more complication has been added to the uncertainties of fishing.

CHECKS on the ponds reclaimed during the summer of 1950 reveal that while some have cleared up in six weeks, others have remained toxic well over two months. Test netting with gill nets several weeks after poisoning caught no fish, indicating the possibility of complete kills. Even if a complete kill is not effected, it is expected that a number of years will be required for the undesirable fish again to attain domination of the pond—and trout can be maintained for this period at least.

The Utopia of reclamation work, however, is complete elimination of all fish, followed by proper stocking. When this goal is achieved, the original investment for rotenone is highly repaid by years of trout fishing.

—ROBERT G. ZILLIOX, *Aquatic Biologist*

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* New legislation just enacted will enable a list of brook trout lakes and ponds in St. Lawrence, Franklin, Clinton and Essex to be prepared before next January 1. Waters so listed will be closed to use of minnows or other fish as bait.

shadbush

ONE of the surest and most welcome signs of spring in upstate New York is the appearance of the shadbush in bloom. While the rest of the woods and fields are still brown, the shadbush, or "shad" as the woodsmen call it, bursts into flower here and there as though some gremlin of the wilds had taken it into his head, overnight, to scatter handfuls of popcorn.

As everyone knows, the shadbush got its name here in the East from its habit of coming into bloom about the time that the shad run up the tidal rivers to spawn. Other designations in the books are "Juneberry" and "serviceberry"; but who ever heard anybody use such names? If you say "shad," "shadblow," or "shadbush" to anyone in rural New York, they will know what you're talking about at least.

The bush in shadbush originates from the fact that it frequently grows as a bush from four or five up to ten or fifteen feet high. Less frequently it becomes a tree and may grow to eight or ten inches in trunk diameter. As a woodlot tree it is fairly useless, and if cut at all, is taken out for firewood. The wood is strong and hard enough for tool handles, and has been so u' lized, but there is seldom enough of it in any one place to bother with.

There are half a dozen species and varieties of shadbush native to New York, and others in the far west and on most of the other continents. The botanical name *Amelanchier* is of uncertain origin linguistically, but is said to have been a name used locally in southern France.

Once the short-lived petals have fallen, shadbush loses its transient beauty and is hardly to be distinguished from other trees or shrubs, except for the characteristic light gray bark on sapling specimens, and the reddish berries which ripen in early summer. These berries are edible if you like something rather mushy, insipid, and faintly sweet; but for my money they are better left for the birds, who go for them in a big way.

The landscape designers take *Amelanchier* more seriously than the foresters on account of the early spring flowering and the slender, graceful habit of the tree, along with its smooth, dark-brown twigs and pointed buds. Both the native species and exotics are used extensively as ornamentals.

Moving Trees and Shrubs

Which brings up the subject of transplanting, a subject that a lot of people have in mind at this time of year. Shadbush, like most other native trees and shrubs, can be successfully moved from the wild state to your front yard—if certain rules are observed. These rules, which apply equally well to many other woody plants such as birch, dogwood and viburnums, may be stated as follows:

(1.) Be sure it (whatever it is), isn't growing on State land, (or any other publicly-owned land). The tree may live, but you will be violating Section 1425 of the New York Penal Law.

(2.) If it's on private land, make sure you know whose land, and get his permission. Otherwise, you will be committing theft, which is also covered by the penal statutes.

(3) The smaller the tree or shrub, the quicker it will recover from the moving operation. Better to move a small one and watch it grow than a big one and watch it die. Five or six feet is a good size and eight feet about the maximum, for amateurs.

(4.) For a really good job (especially where larger trees are involved), root-prune your specimen in the spring of one year and leave it in place till fall or even the next spring, before moving. This will produce new feeding roots close to the tree and if you lift the tree carefully these will come out right along with the root-ball. This is a lot better than leaving the best part of the root system in the ground, as you will if you just dig the tree up without any preparation. For the average small tree, the pruning should be done 18-24 inches from the trunk. Make a cut, straight down, with a sharp spade, all around the tree. Then dig a trench a foot and a half to two feet deep just outside this circle, and sever all the roots you can find, including the tap root, if any; finally, throw the loose dirt back in, and forget about it for the rest of the season.

(5.) Spring versus fall planting: there are arguments on both sides, but for myself, I like to see them start growing right away, and also I have seen more failures in fall planting, especially where the following winter has been severe. In fall planting, wait till the tree is thoroughly dormant and give it a heavy mulch after the ground is frozen; in the spring, move the tree before dormancy is broken, or better still, just when the buds commence to show signs of life, and see that it gets a good watering once a week.

(6.) Most important of all, be sure you have a "green thumb."

—E. W. LITTLEFIELD,
Superintendent, Forest Management.

BIG TUPPER

MR. TUPPER, surveyor, laid the brass-bound transit with tender care among his other belongings in the middle of the light canoe. He straightened, and looking around once more at the prodigious virgin forest surrounding the lake, he felt a long glow of satisfaction; another parcel of the Macomb Purchase had been surveyed. And now for the long trip through the wilderness to Rome. He dropped into the canoe and paddled off, leaving behind at the stump-pocked clearing one important thing: a name that would come to mean many different things to many different people.

To John Hurd, wilderness speculator, the region meant riches for the taking; he envisioned in Tupper a teeming railway terminal with "sports" coming in and lumber going out. He dreamed of the biggest lumber mill in the State and of a lake choked with logs from the surrounding mountains. His dreams came true at least in part when the first train rolled in July 1, 1890. Overnight Tupper Lake Village, a tiny tot of the wilderness, was swept violently through a short adolescence to emerge in full manhood, a delinquent bully looking for trouble.

So it went for nine years, with Tupper a frontier town where murder was committed in the stable to save cleaning up the barroom floor. New buildings went up with no more shape than a 'possum, and streets seemed to emulate the irregular shore of the lake —a lake that looks a little like a multi-legged, hump-backed gargoyle with a choke collar on, caught in mid-air leaping from St. Lawrence to Franklin County, rocky island spines erect down its twisted backbone.

Then one pleasant July evening in 1899, someone (probably) went to sleep with a live stogie and most of the town burned down. It may have been a blessing, for this time when the streets were laid out the man who did it was sober and the result was the neat little industrial center of today.

All these growing pains were part and parcel of Tupper's development as a lumber town; Tupper kept the Raquette River choked with logs for the lumbermen down at Potsdam. Even today Tupper should be "Tumber" to rhyme with lumber, for that's still the main resource. In support of this fact, the wood jacks gather once a year for a festival called Lumberjack Day featuring, besides the usual chopping contests, an interesting display of the latest tools for timbering. They say the Woodchoppers' Ball that night is faintly reminiscent of the days when sharpening your calks was part of getting dressed for town on Saturday night.

Excluding this occasion, Tupper has pretty well escaped publicity. Odd, because the climate is akin to that of Saranac or Placid, and geographically Tupper is located as the center pearl of the famous resort string. Maybe the inhabitants, more business-minded than publicity-conscious, like anonymity. Anyway, nobody is going to cram Tupper down your throat; you've got to discover it for yourself.

You'll discover immediately that Tupper is a sort of vicinity, and "going to Tupper" means a visit to the region that contains Big Tupper Lake, Tupper Lake Village, a stretch of the Raquette River, Simon Pond, Raquette Pond, and maybe even Piercefield Flow which is separated from the rest by a small dam. Here we "go to Tupper."

Several approaches may be used. A great many still use the best approach that was available to Mr. Tupper; they go by canoe, terminating here the 102-mile journey through the Fulton Chain of Lakes. A lot more come up by N.Y.C.R.R. and still more by Route 3. Coming up from Carthage on this road, you break suddenly over a hill to view Tupper as part of an Adirondack panorama that would have made Magellan gasp.

Should you run up Route 10 from Blue Mountain way, you'll see that Tupper has really entered the motoring public's eye, for there are eight clutches of cabins, totaling about 70 units, huddled along the east shore. The west shore is something else again; the State owns a sizeable segment of this and you'll find an excellent tent site at Bridge Brook Bay if you've got a boat to get across.

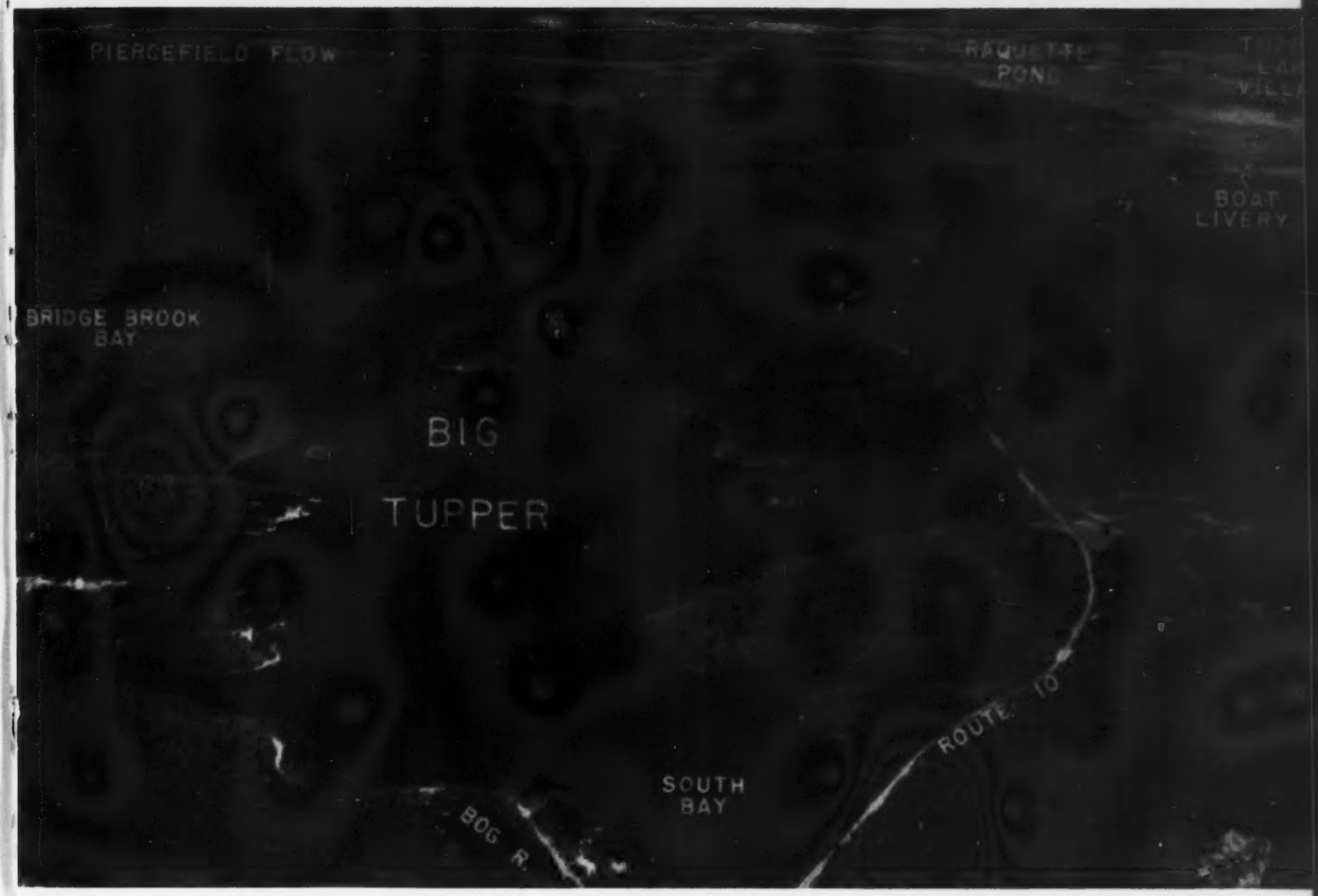
There are several boat liveries, one operated by a genial gent named McDonald who came up to Tupper from New York for a little visit 20 years ago and never went back. "Mac" sells bait and will rent you a canoe or a boat and motor, or repair the equipment you have. In fact you can get about everything you need here, including some dope on the locality.

In one of these boats, or paddling your own canoe, you can take some really wonderful side trips out of the least populated large lake in the Adirondacks. One such trip might be up the Raquette River which, if you're reasonably careful in the rocky channels, is navigable with an outboard for 26 miles up to Raquette Falls. Like most of Tupper's tributaries the Raquette is good fishing, especially good trolling for Northerns for the first eight miles up to Trombley's. If you prefer trout fishing, you'll find the Bog River a sizeable stream with sizeable brookies.

Where this river enters the lake is a good spot for walleyes and almost anywhere on the rocky shore is a good place for smallmouth bass. The piscatorial profile of the lake as a whole is very well described by Mason Lawrence, Senior Aquatic Biologist:

"Tupper Lake at present provides excellent fishing for smallmouth bass, northern pike, and pikeperch . . . Tupper is one of the few Adirondack lakes that produce in abundance those three highly sought warm water species . . . some whitefish are caught also . . . from the best information available the yield from the lake is large each year."

IN our diary, fishing is excellent down at Piercefield Flow. This will make you a swell day's sojourn from your tent or cabin on Tupper. Two of us once put our canoe in above the bridge at Piercefield and caught 27 smallmouths in one morning, keeping three over 17 inches; the afternoon we spent fly-rodding for walleyes, the evening fishing bullheads in one of the bays. We always felt safer down in the



Flow or up the Raquette River anyway, ever since hearing it whispered between two biologists that Big Tupper contains a fish called *coregonus clupeaformis neo-hantoniensis*. Of course, you can take your own chances.

Chances are pretty good, in the fall, of getting a buck. In fact, showing up in Tupper after October 25 without a checked shirt would be like appearing on Hollywood streets without sunglasses. Most of these plaid-clad are deer hunters, many of whom tent out at Lumberjack Spring and hunt on the State land there, after they've gotten a tenting permit (for over three days) from local Ranger Francis Pilon.

We were up at Lumberjack Spring one winter day recently, and walked from there up the road to where the Bog River reaches into the lake with a long arm of open water. And as we stood on the bridge an otter slid out on the ice and began to play; you couldn't have found a wilder picture in Alaska. And all at once we realized just what Tupper symbolizes: everything that's Adirondack and untamed and beautiful. Since then we've realized that when you arrive there, you find you are in Tupper; when you leave there, you find that Tupper is in you.

AS you'll soon discover—and we assume that you've already put Tupper on your "must" list for next summer—the vicinity has a lot to offer. Camping at this hub means you can boat into a different spoke of the wheel every day. You can hunt here with access to a large block of State land. You have an all-weather place to fish, for when it's a little rough on the seven-mile lake, U.S.G.S. maps "Tupper Lake" and "Long Lake" will guide you into many miles of still holes, some of which don't see a plug or spoon from one year to the next. There are several miles of good trails in the vicinity, and a view from the top of Mt. Morris will register with indelible ink in your memory book.

In Tupper Lake Village you will find a smart little shopping center run by people proud but friendly. And watch out if you go in on your vacation; Tupper is industrial and they might put you to work. Work is something most Tupper visitors want to forget and usually do.

There are plenty of places to stay, including six hotels. If you have a trailer you can park it at Little Wolf Pond as the guest of the village. For further information on any of these points, you can get a brochure from the Chamber of Commerce. Wherever you stay, you'll find Tupper is not swank or honky-tonk; it is lusty and vigorous and enjoyable. There are some swell places to eat, including everything from a drive-in to the fine cuisine of the Iroquois or Northland hotels.

In fact, if you ever decide to trot around the world at a parallel of 44 degrees 10 minutes, you'll see a lot of interesting places. One will be the Gobi Desert; another will be Tupper Lake. There is considerable difference between the two. In the Gobi desert, there are only a couple of speakeasies down in Kharianuto—Tupper Lake has 34 bars. This is a very good place to stop. —J. D. BULGER

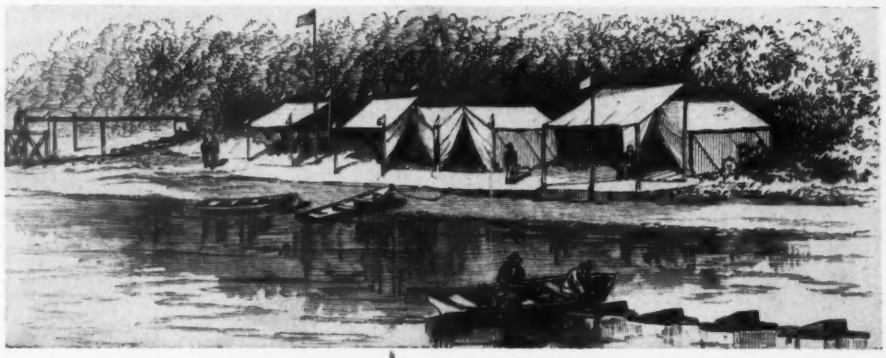
hudson river shad

The engravings and text on these pages were taken from *Frank Leslie's Illustrated Newspaper*, edition of June 8, 1878.* They describe the "Shad Camp" operated near Castleton by Seth Greene.

Greene, who is recognized as the father of fish culture in this Country, had as his objective a sustained shad fishery in the Hudson River. We have the same objective today, but a different approach to attaining it. Greene saw the problem as one of supplementing natural reproduction with cultural methods, winding up with the stocking of tiny fry. He hatched and stocked 15 million shad fry in 1887. Today we try to manage the fishery (by regulating commercial netting) so as to permit natural spawning to do the job. Figuring 25,000 eggs per roe shad (a conservative estimate) and 95 to 98 per cent fertility, it takes only about 600 spawning shad to equal Seth Greene's 1877 hatchery production.

In the peak year, 1945, over six million pounds of shad were netted in the Hudson. A lot of shad.

* Original material courtesy of Mayor Corning, Albany



The camp consists of three marquees set upon a shelf of beach, beneath a superb rampart of forest foliage, opposite a beautiful little inlet, its mirror-like water locked in the embraces of wooded heights, and wooed by an island fit for a Lilliputian Alexander Selkirk. In front of each marquee is an extensive awning supported by poles, each pole decorated with a saucy "bit o' the Stars and Stripes."

The process of incubation shall now be described. When the tin pans receive the ovae they are placed in a row and the washing commences. River water is poured into each pan, the pan being gently agitated the while and added to through the medium of a can for about half an hour.

Everything being in readiness, Mr. Greene called out, "A female," whereupon the expert in the water plunged his hands amongst the bewildered fishes, and, firmly grasping the required "article" handed it to Mr. Greene. This gentleman having cast a short, sharp glance at it, seized it by the head and shoulders in his left hand, while with his right he pressed the stomach—which was turned towards the light—running his hand along its entire length, causing the spawn to spurt forth into the tin vessel.

When the seine was hauled in to a given point, two men in India-rubber boots to the hips plunged into the water and hauled the centre of the seine, while two more pulled on the outer ropes.

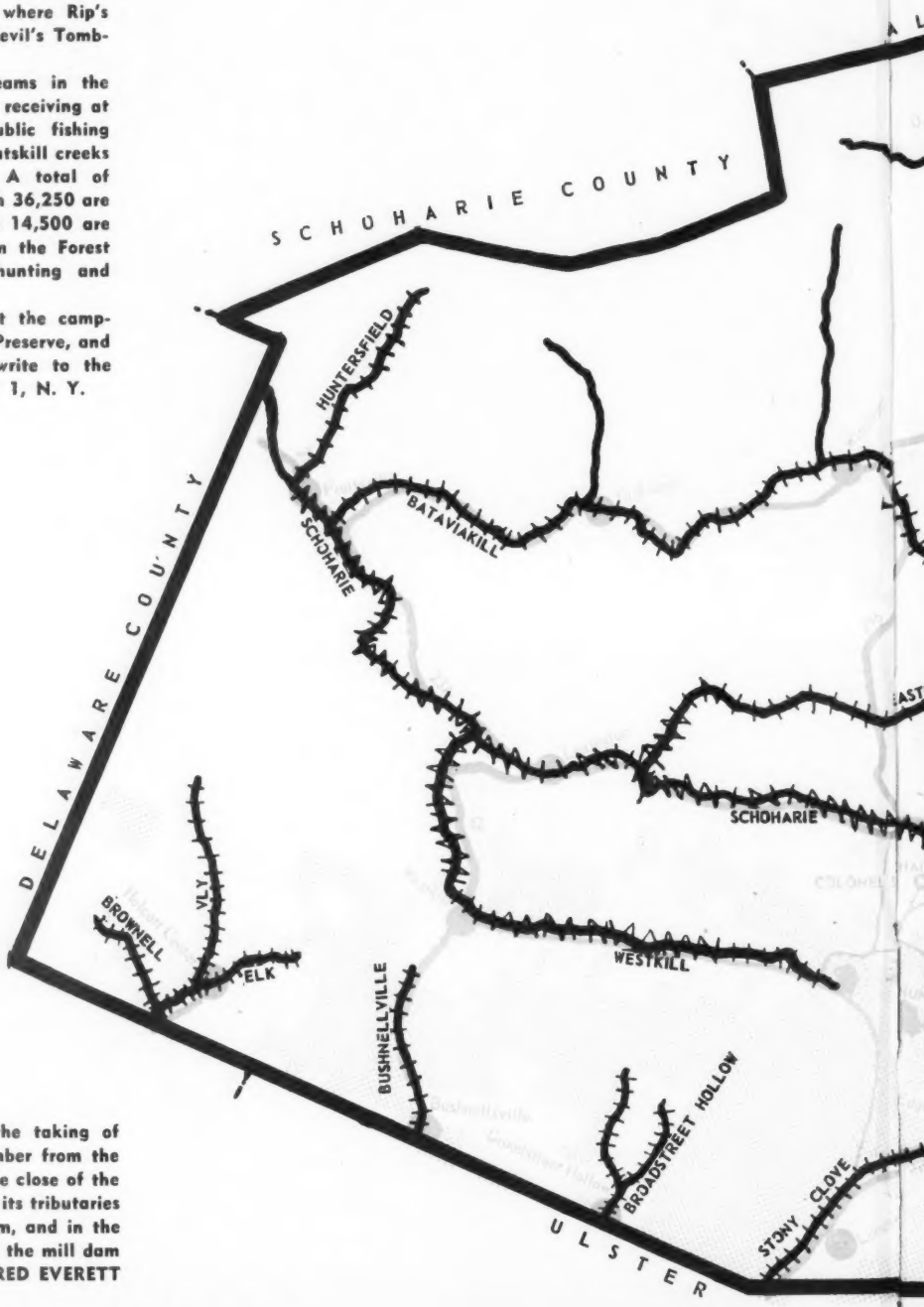
"The 'ripe' fish come up at night," said Mr. Greene. "In my experience of thirteen years I caught but two ripe fish in the daylight. Any fishing that's to be done should be undertaken between sundown and 1 A. M. Arrived at our fishing-ground, by the shimmer of the moon and the gairish light of oil-lamps we saw the nets set, and then—the tug of war. Fastening the end of the rope to a windlass, never before did we behold such a merry go-round as was performed by those agile fishermen while winding in the net."

GREENE COUNTY

This is the land of Rip Van Winkle, bears, deer and blueberries, and of trout streams and a few ponds, but no real lakes. Trails from the only public campsite at North Lake (a misnomer) offer some of the most beautiful views to be found anywhere in the world. Trails also wind through legendary regions where Rip's Rocks, the Colonel's Chair and Devil's Tombstone are favorite landmarks.

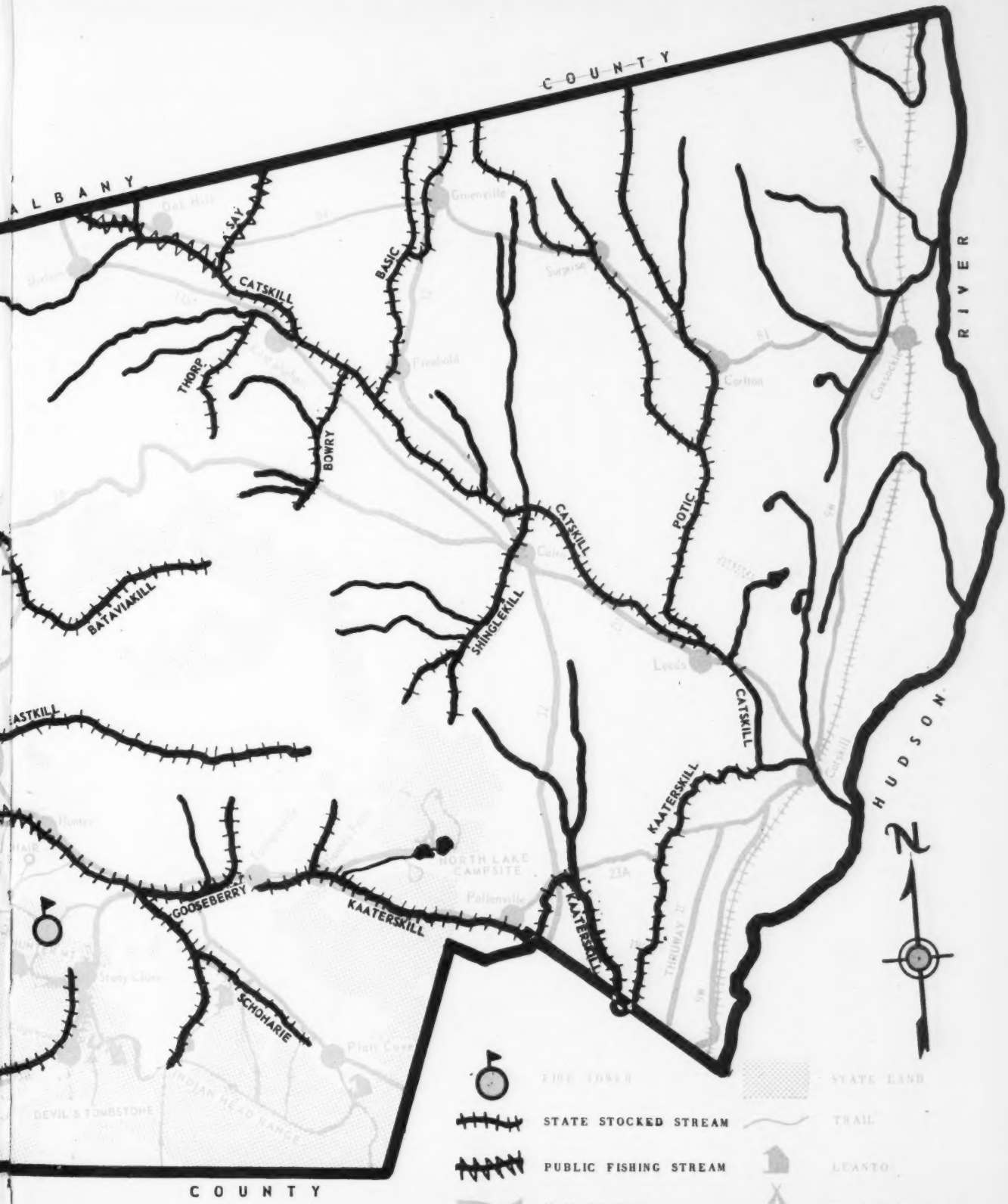
While not numerous, the streams in the county are very productive; those receiving at least 500 trout are shown. Public fishing rights are on the Schoharie and Catskill creeks and some of their tributaries. A total of 65,200 trout are stocked, of which 36,250 are browns, 14,450 are rainbows and 14,500 are brookies. Much of the area is in the Forest Preserve and open to public hunting and fishing.

For detailed information about the campsite, trails and use of the Forest Preserve, and for complete stocking records, write to the Conservation Department, Albany 1, N. Y.



Special fishing laws permit the taking of bass of any size and in any number from the opening of the trout season to the close of the bass season in the Schoharie and its tributaries above the Prattsville Barrier Dam, and in the Catskill and its tributaries above the mill dam at Leeds.

—FRED EVERETT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SCHOHARIE
COUNTY
STATE STOCKED STREAM
PUBLIC FISHING STREAM
STATE LAND
TRAIL
LEANTO
PUBLIC CAMPSITE

white cedar lasts longer

Editor's Note: This is a sequel to District Forester Kennedy's article, "For Fence Posts—Red Pine," which appeared in our December-January number. Shortly after this came off the press we had a letter from Mr. Burnham, taking exception to Mr. Kennedy's omission of white cedar in his listing of posts that could meet the "20-year" requirement and quoting from a U. S. Department of Agriculture bulletin that white cedar was to be "ranked among the species with highest resistance to decay." Upon being pressed, Mr. Kennedy cited Cornell Extension Bulletin # 722 as his authority. That put us right in the middle, and the best way out appeared to be the one we have taken—to ask Mr. Burnham to contribute an article in behalf of his cedars.

Mr. Burnham, whose woodlands are in the Towns of Willsboro and Chesterfield, Essex County, is a co-operator under the Forest Practice Act, and his father, mentioned in the article, was an active figure in conservation for many years, holding the posts in 1908 and 1910, respectively, of Chief Game Protector and Deputy Commissioner in the Forest, Fish and Game Commission, predecessor of the Conservation Department.

NEARLY 50 years ago my father, John B. Burnham, built up a considerable Adirondack timber holding. At the time of his death in 1939, every acre had not only paid for itself through forest harvesting but had made a good overall profit and was in much better condition than when purchased. On the part of this land now in my ownership there are somewhat over 100 acres on which the forest is predominately white cedar.

The northern white cedar, or arbor vitae, is probably the most important of our so-called "minor" trees, but is at the same time one of the least understood. Too many people think of it as a slow growing swamp-dweller. The truth is that other trees reach for the light a little more rapidly and often

The Most Durable Wood Grown in the Adirondacks Responds Well to Forest Management

By Koert D. Burnham

shade out the cedar, relegating it to places where little else can grow. But a bit of thought by the landowner can permit it to utilize better ground, where the great number of trees per acre and the ease with which a sustained yield is secured more than make up for the deficiency of having only a medium growth rate. Cedar should compete only with cedar.

The many desirable properties of white cedar wood are well known: its durability, light weight, aromatic odor, ease of splitting, ability to hold nails and to take paint well. As a result of these properties, it has become extensively used in the Northeastern and Lake States for poles, posts, fence pickets, building supports and rustic work; the lumber is valued in boat building, tanks, interior trim and siding. And of course from early days it has been an outstanding wood for shingles and hand-split shakes.

The durability of cedar is due to substances contained in the wood tissues, particularly the heartwood, which are evidently toxic to fungus organisms such as those which normally cause wood decay. Three and possibly more of these substances have been isolated recently at the Royal Institute of Technology at Stockholm.

In the Adirondacks, where white cedar is locally abundant and is the traditional wood for use under exposed conditions, a few typical examples of its durability may be cited: (1) In Hamilton County, bridge stringers on the old "Military Road" are still sound after 100 years of exposure to damp conditions. (2) At Crater Club P. O., Essex County, in heavy clay soil, the cedar uprights for the back-stops of four tennis courts erected well prior to 1910 were taken down in 1934, and were in perfect condition, as were the one and one-half inch diameter pegs that held guy wires. (3) For some time prior to 1924, I constructed many miles of electric and telephone pole lines. Many of the cedar poles are as good now as when installed, whereas the last time I inspected chestnut poles from a 10-mile section of line (built in 1924) they had completely failed: 40 per cent had broken at the ground line and others had woodpecker holes completely through them. (4) In 1948 I pulled down a series of grape arbors, pergolas, vine-covered entrance arches and similar more or less ornate structures, the frameworks of which were built from cedar poles, often bent so that both ends were in the ground; even though these poles ran down to an inch in diameter their full length, condition was remarkably fine. All had been erected between 1910 and 1917.

SO white cedar is durable. When in May 1948, I signed up under the Forest Practice Act through the efforts of "Herb" McCasland, the local Forester for the Conservation Department, we gave my 100-acre cedar stand particular study. Some of the stand is typical swamp cedar—where it grows along with alder and an occasional hummock pine— but the main part is on a side hill where former fields and pastures have grown up to pure cedar. It is still seeding its way up the mountain wherever there is enough open ground for the seedlings to get light.

Above the swamp stand two gigantic cedars locally known as "The Druids." At breast height one is over eight feet and the other over nine feet in circumference. About six feet from the ground, due to injury in early life, each trunk divides into several forks, each of which is as large and long as an electric light pole. Indications are that these are the progenitors of the entire cedar forest, because, as the distance from them increases, the trees are progressively younger.

Three old roads cut this area. Along them constant felling had resulted in some overcutting, but natural seeding appears to be making a worthwhile catch. Elsewhere the density of the stand is remarkable; faster growing trees can crowd out cedar, but I am confident that none of our native species can produce more lineal footage per acre. Mr. McCasland recommended many more roads as well as continual thinning of the poorer specimens. Roads permit easy access to all sizes and types, and they cost less than nothing to build due to the cash return from the trees cut.

Thinning out the poorer trees likewise is profitable. These culls are of several types; some big, ill formed trees work up best into bolt stock, middle sections can go for guard fences along public highways, while the tops can be sawn off into normal size fence posts. Others are long and slender with almost no crown. We have cut many thousands that are only three inches through at the butt, and an inch and a half thick at 36 feet. Such trees cannot stand alone. The total of their green leaf weight may be as low as a couple of ounces, yet they make wonderful electric fence posts or nursery stakes. Fortunately, heavier bodied, larger crowned trees are always near to take advantage of the added light given by thinning.

The balance of the thinning is nearly automatic. No tree is ever taken because it is a cedar; rather the cutter looks over a group and takes those whose removal benefits the neighbors. Small dead ones are knocked over and laid flat. Limby ones are trimmed. This is done so that the trees taken can be easily dragged to the roads.

Incidentally, living cedar roots are remarkable erosion preventers and water holders. No rain ever causes a water run-off from my cedars; the water stays where it falls until needed by the tree. This is because of a combination of the root growth plus the mulch left from tops and limbs in harvesting.

In the past 50 years hundreds of thousands of cedars have been taken from this tract, yet years of thinning operations are ahead before the stand is open enough to promote best growth. All of which proves—to my satisfaction, at least, that when northern white cedar is more generally treated as a cultivated farm crop, more property owners will reap the same rewards as have come to me from its care and harvest.

Landscaping a

TO DATE, there are 2,531 farm ponds in the State and more in the making. Yet only about five per cent of these ponds are properly landscaped. This condition exists despite the fact that Soil Conservationists and District Game Managers are ready to help co-operators with the Soil Conservation and Forest Practice acts in the landscaping of their farm ponds.

A landscaped farm pond does more than improve real estate values, lower fire insurance rates, provide water for stock, fish and swimming. It lends grace and mellowness and makes the homestead a more self-sustaining, efficient and enjoyable unit. It serves as an outdoor living room, adding eye and recreational appeal for the whole family; who doesn't enjoy a multi-colored landscape of flowers and berries at different seasons, especially when there's water in the picture?

Some farm families use their ponds as social centers for swimming and picnicking; others, as winter skating areas. How much more would farm families enjoy these functions if ponds were landscaped to provide an attractive setting?

Shrubs for pond landscaping will be provided by this Department's Division of Fish and Game to Soil Conservation and Forest Practice Act co-operators, representing another Pittman-Robertson service to landowners. As with tree planting for reforestation, help is provided for planting this shrub stock. Help in selecting shrub varieties for varying soil conditions, as well as in drawing up the landscape plan, is provided by the Soil Conservationist, aided by your District Game Manager. At present, the Department can supply soil and forestry co-operators with 11 kinds of shrubs and 8 kinds of trees in the amounts recommended by the Soil Conservationist and the District Game Manager, subject to limitations in production at the Department's Painted Post shrub nursery.

Once the co-operator's consent is obtained, the heavy work of planting the recommended seedling stock is done by Soil Conservation and Department personnel. After this has been done, the pond owner is on his own to go ahead with additional plans. There is no reason why tulips, iris, salvia, deutzia, forsythia, lilac, flowering dogwood and a host of other ornamentals can't be planted in suitable spots, providing the soil receives adequate preparation. The picnic area might have a park bench, a fireplace and fruit trees. (The Department does not supply or plant ornamentals; only those plants starred on the opposite page.)

Some *shoulds* and *should nots* a pond landscaper ought to consider:

1. Fruit and nut trees should be planted away from the pond edge to keep the fruits and nuts from falling into the water.
2. Native plants should be used rather than plants imported from other states.
3. In wildlife plantings, plants should be selected to provide food and cover at different seasons.
4. Plants should be able to withstand some crowding.
5. Plants which resist browsing and grazing, but are not pasture pests, should be used near fences bordering pastures.
6. Your plan should include seasonal blooming plants. In wintertime, some should provide colorful berries and bark.
7. Alternate hosts of crop diseases should be avoided. In New York State these include red cedar, common barberry, gooseberries, currant and buckthorn.
8. Plants selected should be adapted to local soil and moisture conditions as well as to light and shade, especially on the north side.
9. Shrubs which reproduce by stolons and runners should not be used. They increase maintenance.
10. When ponds border pastures, plantings should be on the pond side of the fence to prevent stock browsing and to allow for fence repairs.
11. Vines such as grape and bittersweet should be planted only near fence posts.
12. *Plant nothing on the dyke except grass.* Tree roots may cause leakage. Mow the grass to discourage mice and burrowing animals.
13. Many farm ponds border pastures. If this is so, the pond should be fenced to prevent stock damage.

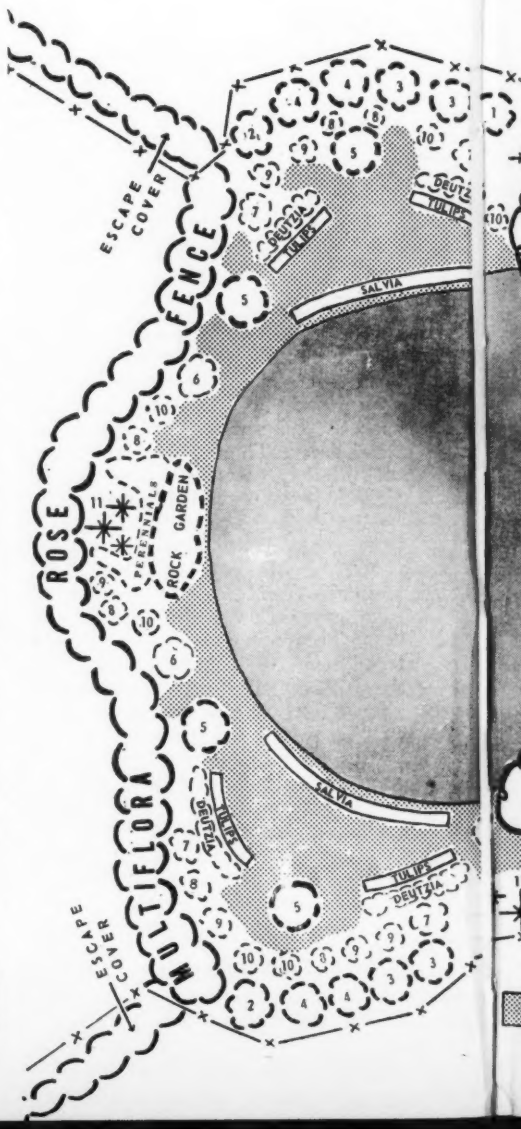
Your landscape plan can be formal, informal or semi-formal. There are as many landscape plans as there are ponds and individuals. *Your plan can be anything you want to make it.* Some co-operators may wish to landscape their ponds to benefit wildlife; then landscaping plans should be adjusted to include adequate wildlife food and cover shrubs.

Shucks, first thing you know, after your pond is landscaped, the neighbors will be coming over more often to socialize and to get advice on pond landscaping. They haven't got a pond? Well, they *should* have.

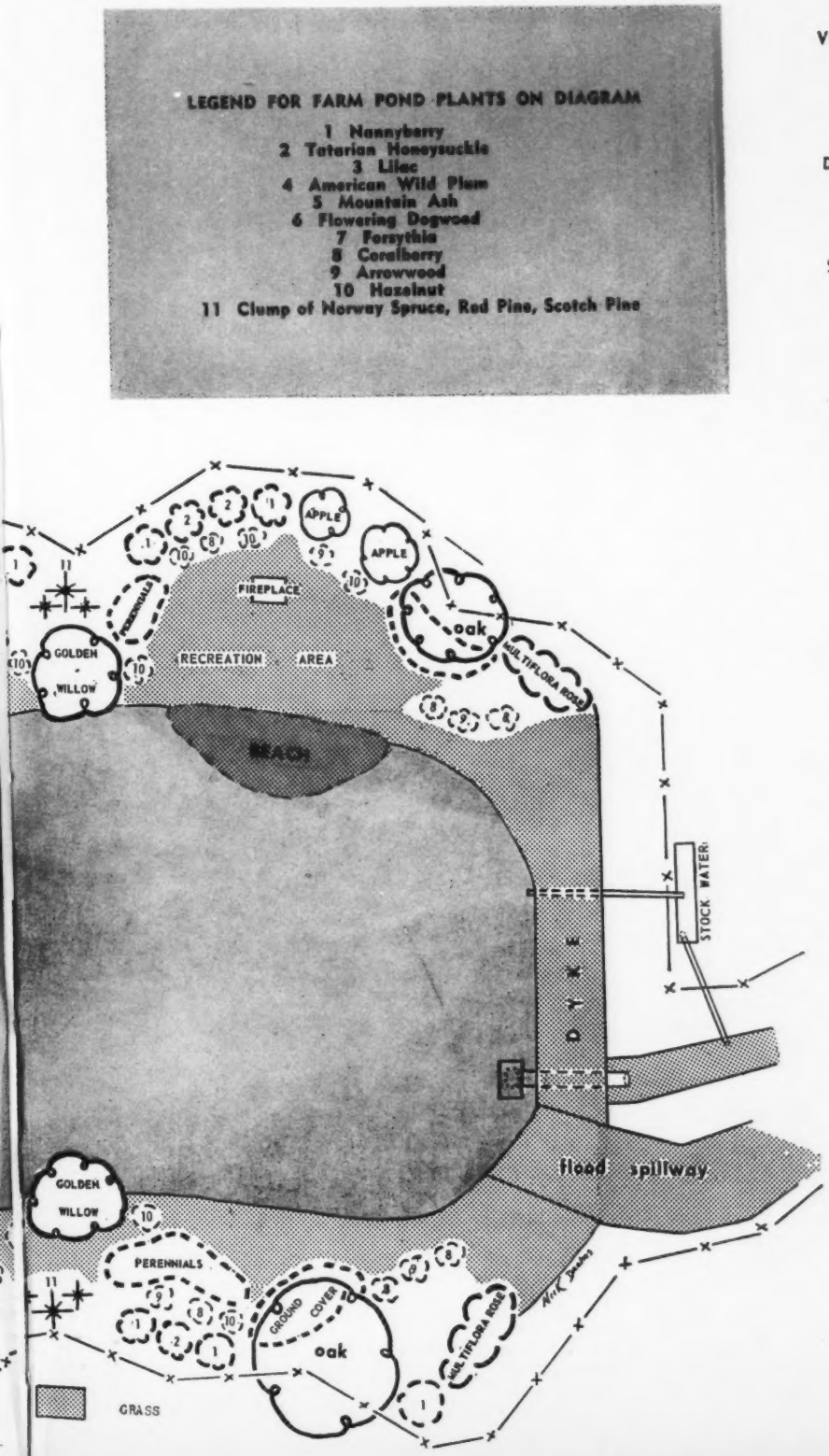
—NICK DRAHOS

* * *

Further information will be found in the following *Conservationist* reprints: #18, Farm Ponds for Trout & Farm Marsh for Muskrats; #66, Farm Ponds; #80, Tree Planting; #120, Multiflora Rose & Shrubs for Upland Game.



a Farm Pond



SOME NATIVE PLANTS IN NEW YORK STATE SUITABLE FOR FARM POND LANDSCAPING

*** Obtainable from the New York State Conservation Department through your Soil Conservationist**

VINES

**Celastrus scandens*—American bittersweet yellow-orange fruit Sept.-April, fall color.
Parthenocissus quinquefolia—Virginia creeper, blue-black fruit Sept.-Mar.

DWARF SHRUBS (1½ TO 3 FEET)

Ceanothus americanis — New Jersey tea, cream-white flowers, June; summer color.
Salix tristis—Dwarf pussy willow, wet spots.

SMALL SHRUBS (4 TO 5 FEET)

**Myrica carolinensis* — Bayberry, gray fruit all year; fall color.
**Symphoricarpos orbiculatus* — Coralberry, flowers white-rose, May; fruit red Aug.-July; winter color.

MEDIUM SHRUBS (6 TO 8 FEET)

**Cornus Amomum* — Silky dogwood, white flowers June; pale blue fruits Sept.-winter; fall color.
**Corylus americana* — Hazelnut, spring and summer color.
**Lonicera tatarica* — Tatarian honeysuckle, flowers yellow May-June; berries red Aug.-Sept.; fall color.
**Rosa multiflora*—Japanese rose, white flowers July; orange-red hips Sept.-April; summer and fall color.
**Viburnum dentatum* — Arrowwood, white flowers, June; blue-black fruit Aug.-April; early summer color.

LARGE SHRUBS AND SMALL TREES (10 TO 15 FEET OR SO)

Amelanchier canadensis—Shadbush, flowers white, May; fruits red June-Sept.; berries make nice jam.
Cornus florida — Flowering dogwood, white-green flowers, May-June; fruit red Aug.-Feb.; spring color.
**Prunus americana* — American wild plum, flowers white, June; fruits usually dark red Aug.-Sept.; susceptible to orchard diseases and insects; not recommended near orchards.
**Salix purpurea*—Purple willow, wet spots, fall color.
**Viburnum Lentago* — Nannyberry, flowers white, May-June; fruits sweet juicy, raisin-like, Sept.-Dec. make nice jams, pies.
**Viburnum Opulus americanum* — Highbush cranberry, white flowers, July; fruits red July-May; summer color; acid fruit substitute for commercial cranberries.

LARGE TREES (50 TO 100 FEET OR MORE)

**Picea Abies* (Norway spruce), **Picea canadensis* (White spruce), **Pinus Banksiana* (Jack pine), **Pinus resinosa* (Red pine), **Pinus rigida* (Pitch pine), **Pinus Strobus* (White pine), **Pinus sylvestris* (Scotch pine), wildlife cover, windbreaks, color.

SCATTER SHOTS

notes of general interest

NO COMMENT

Concerning the "amazing adaptability" of the grouse (see page 34) Feb.-March 1951 *Conservationist*, we received another note on the subject from one of our readers. We publish it as it came in:

One of J. D. Kennedy's hunting pals shot and downed a partridge, but was unable to find it. Two days later he was again hunting the same area, this time with his dog along. He flushed a partridge near where he had lost the one before. It did not fly quite normally, "circled around some," but got up to 15 feet before being shot.

The bird had one wing shot off at the shoulder and from the partly healed condition of the wound was clearly the bird which he had hit two days before. The hunter had often heard that "a bird cannot fly on one wing," so he investigated. Clutched in the foot on the side opposite the good wing was a handful of leaves. Apparently the bird had been able to flop one wing, wave the bunch of leaves (in unison) and attain some speed in the air.

DONALDSON'S HISTORY

A HISTORY OF THE ADIRONDACKS, *by Alfred L. Donaldson. Two volumes, The Century Company, New York, 1921*—Although this history was published for the first and last time just 30 years ago, we mention it here for two reasons: (1) We've had a great many inquiries as to where it can be bought; (2) it is excellent reading, and at the same time remains to this day the most authoritative reference book available to anyone interested in Adirondack history and lore.

The two volumes are definitely a collector's item. You may find them at a rare book store, or you may not. If you do, and can buy them for less than 15 dollars, you've got a bargain that you probably shouldn't pass up.

Donaldson was an admirably diligent historian. The index, bibliography and appendices (which include weather records, lists of mammals and birds, the text of the original Indian grant to Totten and Crossfield, and so on) are evidence of this. But the interest and value of the history depends equally upon another attribute of the historian —a nostalgic love of his subject. This is apparent, but the significant thing is that it does not in the least color Donaldson's representation of facts. Evidently, he also loved facts.

FRANK COLBY'S BIG LOAD OF SPRUCE LOGS

The above card, sent us by Koert Burnham of Keeseville, has the following printed matter on the back:

"We take pleasure in presenting a facsimile of the largest load by count ever hauled through this village, the one taken down from the Mt. Hurricane section Jan. 23rd last, consisting of 268 logs. The load of logs actually collided with maple limbs in front of ex-Judge Pond's house that are 15 feet from the ground, marks being there to attest. Logs are at the unloading ground near the Wm. French place. This load was hauled from Mt. Hurricane to the Boquet River in the village of Elizabethtown, N. Y., a distance of eight miles. It took 312 feet of chain to bind the logs. The load contains 10 cords of wood, at 3,000 lbs. per cord weighed about 30,000 lbs., 15 tons. Colby's team drew it alone and unaided.

"Copies of this cut for 10¢. Photographs for 25¢.

"I keep in stock and constantly on hand all kinds of Sewing Machine Needles which I will deliver free, by mail, for 25 cts. per dozen. I furnish new parts and fixtures for any kind of Sewing Machine. I will deliver one of the finest Sewing Machines made, with all kinds of attachments for $20, four drawers; for $22, six drawers. Drop head machine for $27. Satisfaction guaranteed. Agents wanted.

M. B. Davis, Elizabethtown, New York"

THE LATEST ON MAPS

A check of our mail indicates that we have more requests for maps than for any other item. So, with the vacation season coming on and the demands for maps growing, we report as follows:

The quadrangles published by the U. S. Geological Survey, Department of the Interior, Washington, D. C. are by far the best and most detailed topographical maps available, and that's what most of our subscribers seem to want. These maps show lakes, streams, mountains, and other physical features of the terrain, as well as roads, towns, and other man-made features. These are the maps which our field personnel —as well as almost anyone else who goes into the woods—use with or without a compass. It takes 260 quadrangles, or individual maps, to cover the whole State, so that in ordering a quadrangle for the particular area you are interested in it is necessary to specify just which one you want. The U. S. G. S. will send you, for free, an index map showing the area covered by each of the individual quadrangles; then you can pick out the ones you want and order them from the U. S. G. S. at 20¢ per map. We don't have them for sale here in the Department, but some book and stationary stores carry them.

(The Adirondack Mountain Club, 54 Lenox Ave., Albany, offers the 58 quads covering the Adirondack area and marks all State trails and other known passable trails in color.)

In second place on the list of requests are those who want to know the exact locations of State and private lands. To meet these needs we have the Adirondack Land Map, $3, in four sections, 55" x 18" for each section; Catskill Land Map, $2, three sections, 44" x 13" for each section. These maps are available from the Conservation Department.

Maps of Lakes: Charts giving depth data have been prepared only for the Great Lakes, Champlain, Oneida, Onondaga, Cross, Cayuga, and Seneca lakes, and for these only because they form part of the New York canal system. For such charts, write to the U. S. Lake Survey, 630 Federal Bldg., Detroit, Michigan.

Available from this Department are reprints of articles on Lakes Cayuga, Chautauqua, Conesus, Cranberry, Keuka, Ontario, Long, Oneida, Seneca, Sacandaga Reservoir—all with maps.

We have no county maps available except those which have been reprinted from articles in the magazine. At present this list includes only the Counties of Cattaraugus, Chenango and Sullivan, although others are in preparation and should soon be ready.

BEFORE CONSERVATION

This photograph, taken in 1889, shows a father-and-son team after a single day's market hunting near Ghent, in Columbia County. More than 100 pieces of game were used as props for this picture, including 52 grouse. Also shown are rabbits, squirrels and quail.

Free recreation circulars with maps: Lake George, Adirondack Canoe Routes, Trails to Marcy, Catskill Trails, Lake Placid Trails.

Maps of smaller bodies of water also appear in the Biological Survey Reports published by this Department. These reports are now in rather short supply, but still available are: Oswego River System $2.60, Erie-Niagara System $2.25, St. Lawrence Watershed $2.40, Raquette Watershed $2.65, Alleghany-Chemung Watershed $3.68, Fresh Waters of Long Island $1.25, Salt Waters of Long Island $.75, Lake Ontario Watershed $2.50. In addition to the maps and information contained in these reports, you will also find color plates of fish which you will recognize as those we use on the back cover of our magazine.

FEWER FOXES

We had a letter the other day from Lewis Eckhart of Barryville, who recently made quite a name for himself as a trapper of foxes in Sullivan County. During January and February he caught 251, all but five of them grays. As far as our records go, that puts him in the top spot as a fox trapper in the State.

Mr. Eckhart attributes his success mainly to a secret scent that he found out about while stationed in India during the war. (He was an Air Corps cook then, is a mason now.) He says this scent will draw a fox five miles away, and in view of the results he's had we won't argue with him about that. There's no doubt about the figures on the fox take, either; Game Protector Marcus Hinckley checked them.

WIND AND FIRE: This picture was taken at Uncas, near Raquette Lake. A windstorm in July 1936 leveled the forest; then, on May 1, 1938, a fire swept through. The fire would probably have burned more thoroughly if it had occurred later in the season, when the down timber would have been more dry. Note fire line cut at lower left.

AFTER THE STORM

A Progress Report on Fire Hazard Reduction in the Forest Preserve

SINCE the last issue of THE CONSERVATIONIST, the forces of the Department's Division of Lands and Forests in the Adirondack and Catskill areas have been bending every effort to determine the most critical forest fire hazard areas created by the great storm of November 25. The work has consisted mainly of additional flying and groundwork to supplement the preliminary data acquired entirely from the air, and six additional men were transferred from downstate to the Adirondack area for this purpose. The result has been that 51 salvage projects large enough to be attractive to industry have been located and for the most part delineated with blazes and painted lines. Contracts have been let for four of these logging chances, which included an estimated total of 33,300 cords of pulpwood and 1,750 MBF of hard and softwood saw timber. These four contracts should return to the State at least $125,000.

In addition, bids on 47 other projects already advertised will bring the total salvage material now being offered and previously contracted for to 317,975 cords of pulpwood, 34,585 MBF softwood saw timber and 7,950 MBF hardwood saw timber. It is significant that this figure very nearly approaches the total of a normal year's cut for the Adirondack area. In view of this fact, it appears that enough salvage projects have already been set up to absorb nearly all of the available supply of lumberjacks—provided the projects are all contracted for. And it must be remembered that private landowners, with salvage jobs of their own, are also competing for the labor supply.

Concurrently, the three District Foresters in the Catskill area completed a careful reconnaissance of Greene, Sullivan, Ulster and Delaware counties. Their reports indicate that the damage to the Catskill area generally was light and for the most part confined to relatively small areas on the tops of the higher mountains. However, nine areas were reported where the blow-down is of sufficient size to justify a salvage job. These areas will be advertised for bids in the near future, in a manner similar to that followed in the Adirondack region.

Notwithstanding the time and manpower required to locate, estimate and delimit the 51 proposed operations in the Adirondacks, the Department's forces have also succeeded in completing the following rehabilitation work made necessary by the extensive damage done by the storm.

The rehabilitation of 95 per cent of 151 miles of damaged telephone lines, and the opening up of 83 per cent of 85 miles of trails—both leading to the State's system of fire observation stations. In addition, 78 per cent of the 124 miles of blocked fire truck trails have also been opened.

Campsite clean-up work is 85 per cent completed, and 131 miles (or 60 per cent) of the 217 miles of recreational foot trails have been made passable—as have 87½ per cent of the 44 miles of trails in the Lake Placid and Saranac areas. All figures are as of April 2; the work is continuing.

Considerable time has also been spent in intensive planning for training meetings of Forest Rangers and Observers to be held in the critical areas prior to the spring fire season; in the drafing of signs to designate and protect critical areas, and in the requisitioning of additional forest fire suppression equipment such as back and power pumps, hose, etc. Specifications have been prepared and bids are being asked for additional radiotelephones. In cooperation with the Department of Correction, all of the motor vehicle equipment belonging to the Bureau of Forest Fire Control has been thoroughly reconditioned during the winter by inmates at Wallkill Prison.

Last but not least, the Department was successful in securing the passage and approval by the Governor of the several bills introduced to amend the Conservation Law in order to improve forest fire protection in the devastated area. (See page 7.)

Credit should be given to the Technical Forestry Advisory Committee, appointed by the Commissioner to check on plans for the fire hazard reduction program. The Committee has been extremely helpful not only in shaping the general program, but in working out the specific details involved in putting it into operation.

As the Department secured more detailed information as to the character and extent of the blow-down areas, it became obvious that there were some locations where the blown down timber was not in sufficient amount to justify a commercial operation, but where—because of its location adjacent to highways, trails or developed areas—the fire hazard was acute. Such areas have been located and mapped, and State personnel, under the direction of the various District Foresters, have begun fire prevention work. On these areas it is proposed to dispose of the slash in the same manner as is required on contract areas, but to leave the boles of the trees lying upon the ground for sale and removal at a later time.

In the same category fall certain remote areas of blow-down traversed by recreational trails or other avenues of travel. These trail-side or road-side areas will be fireproofed in the same manner as rapidly as they can be handled, but because of their extent and location it is doubtful if fireproofing job on the trails can be completed during the current recreational season.

FIRE FIGHTER: Ranger Pat Cunningham of North Creek at the wheel of the latest thing in Commission fire trucks, 1917. Yes. it's a Model T, and it carried a lot of men and equipment over a lot of bad Adirondack roads to a lot of fires. The Department now has 62 fire trucks in the Adirondacks, ranging from jeeps to 5-ton stake-bodied jobs.

A nesting woodcock is easy to photograph—once you find the nest

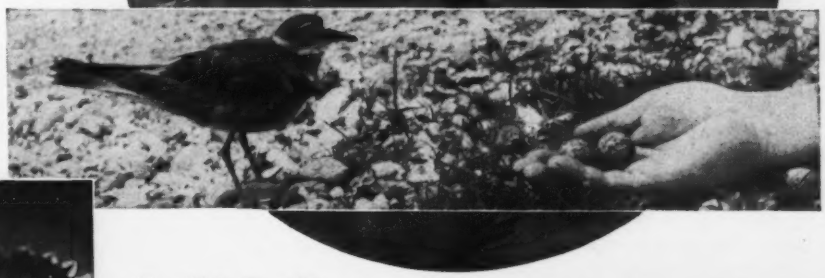
The woodcock is noted as a bird that will sit on her eggs even at close approach of man

Nesting Season

by W. Bryant Tyrrel'

Woodcock only a few hours old. Our photography did not interfere at all with bringing off the brood

This female killdeer noticed only the cameraman, not the fly



She was completely fearless, and came within a few inches of our extended hand

She didn't lie quiet like the woodcock, but reared up in defense of her nest and eggs

Like the woodcock, however, she brought off her brood. We took great pains not to interfere too much

FOR YOUR INFORMATION

REPORT ON LICENSES

TYPE OF LICENSE	1949	1950
Res. Hunt. & Fish	246,754	230,564
Res. Hunting	203,740	214,986
Res. Fishing	432,864	437,724
Res. Trapping	19,355	4,712
Res. Big Game	308,049	196,908
Res. Buck or Doe	.....	144,809
Res. Archery	709	1,136
Non Res. Combination	462	485
Non Res. Hunting	3,261	3,970
Non Res. Fishing	18,733	20,054
Non Res. 3-Day Fishing	8,306	9,382
Non Res. Trapping	8	12
Non Res. Big Game	5,118	5,108
Non Res. Buck or Doe	.....	1,119
Alien Combination	49	48
Alien Hunting	130	185
Alien Fishing	767	806
Alien 3-Day Fishing	25	21
Alien Trapping	6	2
Alien Big Game	79	90
Alien Buck or Doe	.....	15
Lost Licenses	6,903	5,233
Muskalonge	14,392	13,804
Free Fishing (over 70)	31,629	27,744
Free Fishing (Blind)	9	97
TOTAL	1,301,348	1,319,014

CONSERVATION CAMPS

According to present plans, the Department again will operate the five conservation education camps for boys which handled more than a thousand young outdoorsmen between 12 and 17 last summer.

The boys are sponsored by various organizations, primarily sportsmen's clubs, who pay their expenses. The Department provides the facilities, leadership and training. Camp periods range from one to two weeks per boy, according to the camp, and applications for boys via sponsoring groups are handled only through the District Game Managers whose names and offices are listed in the back of the 1951 Fish and Game Law Syllabus. In general, applicants from the Adirondack area should get in touch with Greenleaf Chase; Capital District with Asa Smith; Catskills—Al Hall; Lower Hudson, New York and Long Island—Bob Ohlman; Northwestern Counties—Bob Perry; Southern Tier—John Wunder; Central—Paul Kelsey; East Central—John Nemes; Northeastern Ontario-St. Lawrence—John Wilson.

PLEASE!

Comes now the time of year when people pick up fawns, baby rabbits and almost any young animal or bird that *looks* helpless and deserted. Nine times out of ten they're neither helpless nor deserted, and even if they are they stand a better chance of growing up if left alone. So *please* leave them alone.

Besides, the law on making captive pets of protected birds and animals is very explicit; you can't do it without a permit from this Department.

WE BUILD AN EXHIBIT

In our last issue, we devoted two pages under the above title to the Department's exhibit for the winter show circuit. The exhibit was then in the blueprint stage. Readers may be interested to see how the blueprints materialized at the Grand Central Palace in New York and elsewhere.

THREE TROUT ASSOCIATES

Quotations are often more euphonious than significant, but "A man is known by the company he keeps" is one of most sentient and widely applicable. It even applies to women—and to fish.

Trout are relatively antisocial. They don't enjoy competition and generally thrive best where other species are scarce or absent. Brook trout especially are true prima donnas and "want to be alone." Browns and rainbows are a little easier to get along with. Actually, most New York trout waters are inhabited by other species and the trout are seldom able to attain their preferred splendid isolation.

Early settlers found the brook trout associated with a characteristic, small group of other native species. Trout tolerated these with more or less success but when non-native species were widely (and usually mistakenly) introduced to diversify or improve the fishing they almost invariably proved to be incompatible with trout. It pays to respect the trout's choice of associates.

Three natural associates of trout are pictured on the back cover. If you aren't already acquainted with them, the following sketches may help.

Black-nosed dace (*Rhinichthys atratulus*). Characteristically this is a stream fish. If a trout stream contains any minnows, this one will usually be included. It occasionally occurs also in streams too warm for trout and, therefore, is not considered to be a true indicator of trout streams. It is sometimes found in small numbers in ponds but this is not its typical environment. The species is familiar to most minnow fishermen for it is one of the bait minnows most commonly used by trout fishermen in streams.

The black-nose spawns from late May well through June and prefers riffles or gravelly areas just above them. It is relatively tolerant, however, and has been observed to spawn in a pond in very slow moving water above the spillway. The fertilized eggs sink to the bottom to lodge among and under gravel and rubble. There is no nest building activity. In spawning dress the male shows a good deal of rusty red on body and fins but the female retains the comparatively plain pattern depicted on the cover.

Northern red-bellied dace (*Chrosomus eos*). The male of this species in spawning colors (as pictured) is probably our most beautiful minnow. Even females and males in normal brown, black and white are very trim and attractive. As in brook trout, the scales are too small to be noticeable and it is not surprising that these dace have often been mistaken for young trout.

This minnow is a typical bog water species. It occurs commonly in bog ponds as well as in slow flowing, swampy, head-water streams. These waters are often spring-fed and cold, but red-bellied dace thrive as well or better in warm water, provided other conditions are favorable. Like trout, they seem to be unable to tolerate much competition from other species.

Their spawning season is lengthy, occurring from late May into August. There is some evidence that in the southern part of their range, at least, these fish have two spawning periods each season. Typically the eggs are deposited and developed among filamentous algae, those clumps or masses of rootless, soft, green vegetation.

These minnows make excellent trout bait and some attempts to culture them for bait or forage have been made. They appear to be less prolific and hardy than some of the more common bait species, however.

Northern sculpin, muddler (*Cottus cognatus*). Whenever this little monstrosity reaches the light of day and some fishermen's field of vision, he is likely to be greeted with amazement or even skepticism. His front view might well garnish the pages of a "whodunit" for atmosphere. However, this sculpin is not often seen by fishermen.

The muddler has a huge mouth relative to the small (two to three-inch) body. Insects and small fish have good reason to know that that big mouth is "the better to eat you with." It is well-known that these sculpins eat small fish as well as insect larvae and there is no doubt that they eat some fish eggs. Nevertheless, they are probably much more harmful as competitors with trout than as predators.

This is a true cold water species and its presence is regarded as a reliable indicator of trout water. It occurs not only in cold streams but also in the deep, cold waters of lakes, having been taken from depths as great as 200 feet. Due to rather unusual spawning habits, it is not likely to be abundant except where there is a fair amount of rough, rubble or stony bottom available.

Spawning occurs early in the spring soon after the ice goes out, and on through May and June. A crevice under a stone or some flat object is selected and the adhesive eggs are stuck to the roof of this crevice. The "nest" is guarded by the male, and this little dragon should do a good job of it.

—C. W. GREENE

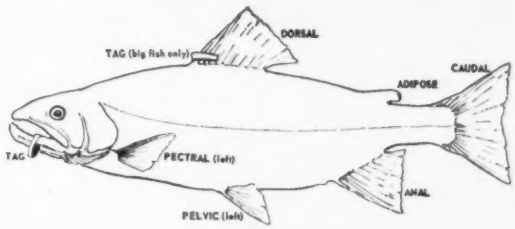
FISH THAT TELL A STORY

There are well over 100,000 fish swimming around in New York waters that wear either a metal tag or a clipped fin. They are marked fish in the literal sense of the word. They have been marked by Department biologists, who keep a careful record of the fish so clipped and tagged and who hope—if and when the fish turn up again in some angler's creel—to hear about it. By reporting the taking of these marked fish to the proper authorities, anglers provide our biologists with information about survival, growth rate and migration—information which is all important to good management.

If you catch a tagged or clipped fish, please do the following: Measure it—tip of snout to tip of tail. Give location, date, your name and address. If there is a tag, tell us the number. And if the fish has a missing or very stubby fin, please let us know exactly which fin has been clipped, and if it's a pectoral or ventral fin, be sure to state whether it's on the fish's right or left side. The diagram below shows names of fins. (The ventral is also called the pelvic fin).

You may wonder why both clipping and tagging methods are used. The answer is that tags are not adaptable to very small fish; hence problems such as those involved in the study of survival of planted fingerlings necessitate fin clipping.

Sending us the information we need will cost you a little time and the expense of postage. But it will help us to improve your fishing in the long run. Besides, your letter or card will receive a prompt reply, giving you the dope on growth and migration of your fish.



HELP US WITH WOODCOCK

The woodcock is one of New York's major upland game birds. The possibilities of management to improve the status of this species are being studied, and one phase of this work is the banding of woodcock chicks to obtain data on survival rates as well as information regarding migration routes.

Woodcock chicks must be banded soon after hatching when they are easily caught. Very few nests and broods can be found by project personnel alone, however. Therefore, it will be very helpful if any New York State reader who finds a nest or newly hatched brood of woodcock this spring, and who would be willing to take a Department investigator to the spot, will drop a card to Charles P. Brown, Wildlife Research Laboratory, Delmar, New York. Please give date when nest was found.

Woodcock nest on the ground in brushy growth. (See page 31.) The eggs, almost always four in number, are about 1¼ inches long and heavily mottled. Once a nest has been found, it is urged that the observer avoid the immediate vicinity until the visit of the Department investigator.

LARCH SEED

In the spring of 1953, New York landowners will plant seedlings of European larch, the parent trees of which didn't grow in Europe. The seeds came from a State Forest in Chautauqua County, where 27 bushels of cones were collected last fall in a European larch plantation established in 1930. These cones have just been run through the extracting plant at Saratoga Nursery and yielded 25 pounds of seeds—enough to produce nearly half a million trees.

This is the first collection we've made from "home-grown" larch, but for several years our District Foresters have been collecting Scotch pine, Austrian pine and the two spruces (Norway and white) from plantations, and it looks as though we might eventually get most of our tree seed this way rather than from commercial sources. This will be of immense help in scheduling nursery output, where the European species are concerned, because with wars and rumors of wars the supply from overseas has become less and less dependable.

LATE NOTE: Of 47 projects advertised (see page 30), bid opening April 10 showed 28 companies bidding on 21 projects. Total of highest bids gives $179,760 for 57,675 cords of softwood pulp; $42,268 for 3,310 MBF softwood saw timber; $20,582 for 1,890 MBF hardwood saw timber.

FOREST RANGER

Division of Lands and Forests, Bureau of Forest Fire Control

Salary: $2,208 at time of appointment and increases by five annual increments to a maximum of $2,898. (Cost of living bonus of $300 will be paid during 1951-52 fiscal year.)

Civil Service Status: Non-competitive classification. No competitive examination required, but appointee must possess qualification requirements. Personnel recruited from area where vacancy exists.

Positions (number and location): There are 110 Forest Rangers in the State. Most of the counties to which forest fire facilities of the Department have been extended have a varying number of Forest Rangers, depending on local forest fire hazards.

Promotion Opportunities: There is no direct line of promotion. Forest Rangers who qualify may compete in open competitive civil service examination for District Ranger.

Working Conditions: Work is performed out-of-doors the year round. It involves considerable walking in rough, wooded, and mountainous country, frequently under adverse weather conditions.

Rangers have one day off in seven. On call 24 hours per day. No basic work week. They receive 24 days vacation with pay each year and earn one day of sick leave credit for each month. Unused sick leave may be accumulated to a maximum of 150 days.

Uniforms, and necessary equipment, including telephone, are furnished by the Department. Employee must furnish car. Travel expense, for official business, reimbursed monthly at rate of 7¢ per mile for car, and for board and lodging when required to be away from official headquarters.

Retirement: Membership in Retirement System compulsory. Employee contributes on payroll deduction basis. Variety of retirement benefits are offered.

Duties: A Forest Ranger works under general supervision of a District Ranger. He has charge of the suppression and prevention of forest fires and the protection and public use of State-owned lands in an assigned area. Organizes and supervises the work of local fire wardens and laborers in suppressing forest fires. Constructs and maintains fire observation towers, fire observers' cabins, telephone lines, fire trails, fire breaks, water holes, other fire protection and recreational facilities. Determines cause of forest fires and acreage burned. Issues burning permits. Patrols State-owned lands to prevent illegal use or occupancy and enforces the laws, rules and regulations governing the public use of such lands. Searches for lost persons. Maintains and operates fire fighting tools and equipment. Issues permits for camping on State lands, other than public campsites. Prepares regular periodic reports summarizing field activities.

Qualification Requirements: *Physical:* Physically strong, active, and freedom from all mental or physical defects which might impair discharge of duties. Age: From 21 years to 41st birthday (time spent on military duty in World War II is deducted.) *Education:* Graduation from high school or its equivalent. *Experience:* Three years of satisfactory lumbering, forestry, or woods experience, or other satisfactory experience which would provide a good knowledge of forest work, including forest fire control and suppression. (Graduation from the New York State Ranger School will qualify for appointment).

Special Knowledges and Skills: Good knowledge of the area to which assigned, of forest fire hazards, the methods used to eliminate them, and the methods and practices used to combat and suppress forest fires. Good knowledge of the laws, rules and regulations relating to the public use and protection of State forest land. Ability as a practical woodsman. Capacity to withstand outdoor life under adverse weather conditions and stamina to combat forest fires for protracted periods of time. Ability to organize and supervise the work of labor crews. Ability to read maps, to understand and carry out oral and written directions, to write reports. Possess integrity, good judgment, common sense, good character.

Next issue: District Ranger

spring work

Forest Ranger

Bureau of Forest Fire Control–Equipment is being put in shape for the spring fire season; cleaning up the Nov. 25 blow-down mess continues; repairs are being completed to telephone lines, and fire trails are being opened which were not previously accessible because of snow and ice. Observers are being re-organized for duty on opening of the fire towers. Fingers generally are crossed against a dry spring because of the extra hazard created by the storm.

Bureau of Camps and Trails–Still cleaning up after the storm; tables, fireplaces and structures that were crushed are being repaired to be in readiness for opening before Memorial Day. Foot trails in the High Peak Country are practically cleaned up. Another big season all around is anticipated; Belleayre Mt. Ski Center with its chair lift is also expected to be popular again with sightseers.

Bureau of State Forests–Two million white pine trees will be planted as part of the regular reforestation program. Work continues in cleaning up after the storm, though there was not too much damage on State plantations.

Bureau of Forest Pest Control–White pine weavil and spruce bark beetle will face a new combatant–a helicopter. Spraying will be done from the 'copter using DDT and Lindane (trade name for a form of insecticide) in an attempt to prevent build up of beetles in the blown down timber in the Adirondacks and to prevent their spread to surrounding stands of timber.

Bureau of Nurseries–Lots of work incidental to the shipping of over 28,500,000 trees, taking about 94 per cent of the supply. Over 7,000 orders were received for spring shipment.

Bureau of Law Enforcement–The opening of the trout season just means more work to these fellows.

Bureau of Game Farms–It's housekeeping time, with the pheasants well into egg production. To furnish more day-old mallard ducklings, a greater number of breeders have been placed in laying pens.

Bureau of Inland Fisheries–Five salvage crews are in operation, working from the southern part of the State north as the weather permits, netting and transferring pan and game fish from waters where public fishing is not desirable or is prohibited to waters open to public fishing.

Bureau of Soil Conservation–Busy on erosion control measures on the slopes of Belleayre Mountain Ski Center. In co-operation with the Finger Lakes State Park Commission, the Schuyler County Soil Conservation District and business interests in Watkins Glen, planning stream improvement work on Catharine Creek. Continuing erosion control work on Whiteface Mountain Ski Center.

Bureau of Game Management–About 3¾ million trees and shrubs from the Painted Post Nursery will be set out by co-operators under the Soil Conservation Districts' programs as part of the project PR-48-D (more cover on the land). Also planting seed at the nursery. The rabies (fox trapping) program being continued, coy-dog control program being mapped. Spring census of pheasants. On the Oak Orchard and Three Rivers Game Management areas, grain crops will be planted.

Bureau of Fish and Wildlife Investigations–*(Fish)*: Clipping fins and tagging fish starts. Appraising results of winter reports and surveys. Tabulating the Lake Champlain ice fishing census data. Observing spring runs. Putting finishing touches on field programs including work on trout streams and census work.

(Game): Continuing study of the success of transferred varying hares. Studying results of range management for cottontails, pheasants and muskrats. Making pheasant and woodcock counts. Making surveys of selected deer yards. Continued study of water chestnut control methods. Correlation and analysis of data pertaining to work already done.

Bureau of Forest Management–FPA co-operators (1,019 of them) will receive 7½ million trees this spring, more than equal to the total number of trees furnished co-operators since passage of the "free tree amendment" in 1947. An extra work load has been added on the District Foresters at Norwich, Catskill and Middletown and in the Adirondack districts by the blow-down; for that reason there may be some delay in taking care of FPA requests.

Bureau of Marine Fisheries–Working out safety plans with Army Engineers relative to anti-aircraft artillery practice at Ft. Hero, Montauk; also involved was maintenance of maximum fishing effort. Location of another large bed of surf clams (20 miles long, off middle and easterly part of Long Island) involves seeking berth space for large fleet of boats; thousands of bushels being brought in daily. Tagging winter flounders in Moriches Bay. Conducting water and shellfish tests on sewage disposal plants' effluent flowing into Hempstead Bay.

Bureau of Fish Culture–Getting nets and equipment ready for taking of muskies in Chautauqua and pikeperch in Oneida for eggs; ponds and water supply completed and whole of new hatchery on Chautauqua expected to be in operation this year. Stocking of streams to continue into June, with stocking up to 75 per cent of recommendations on browns, 70 per cent on brooks and 60 per cent on rainbows.

—ROLAND B. MILLER

LETTERS TO THE EDITOR

STATE-STOCKED STREAMS

Dear Sirs: In the February-March 1951 issue of *The Conservationist* it states in the article on Franklin County that all State-stocked streams on private lands are open to the public. I would appreciate clarification of this.

For instance, in the preceding issue on Ulster County, the Woodland Valley Stream is shown as State-stocked, yet if I am not mistaken it is posted to a considerable extent. The same conditions existed last spring on the upper stretches of the Esopus and Big Indian and Oliveria.

I'm the last one to want to force myself in on someone's privacy, but if, in such cases, the land is posted, have I the right to enter the property and fish the stream?

Howard D. Digby, East Hampton

• *The State stocks many streams on private property, but not if the property is posted. Some streams listed as State-stocked on our county maps are posted in certain sections of the stream, in which case those sections receive no State fish and are not open to public fishing. Other sections of the same stream, however, may not be posted, are stocked by the State, and are open to the public. In making up our county maps, we find it just about impossible to indicate which areas are posted and which are not; changes in this situation occur too fast.—Editor*

FISH TAGGING

Dear Editor: I would like to know if the individual tagging of game fish is legal in this State. If so, could you inform me on the methods used and the usual procedure.

Victor Fritz, Auburn

• *Fish taken lawfully, in season and of legal size, may be tagged and returned to the water. As to methods, see page 33. But operations by individuals in the tagging field rarely provide for a dependable system of recovering the tags and pertinent information about the fish that wears them; in addition, if everybody starts tagging or clipping fish, it's going to foul up the fish-marking work of this Department.—Editor*

MOOSE NOTE

Dear Editor: The enclosed clipping from Tupper Lake, reporting the presence of a bull moose in the Adirondacks, was published in both the *Utica Press* and *Utica Observer Dispatch* of September 16.

While the date of 1860 for the last appearance of moose in the Adirondacks seems to be about right for "native" individuals the article does not mention subsequent occurence of "stocked" moose.

The Seventh Report of the New York State Forest, Fish and Game Commission published in 1901 states that—"the state is engaged in replacing at great expense the moose which were destroyed fifty years ago.."

The "Moose Book" by Samuel Merrill, published in 1916, states that—"In 1902 seven or eight specimens (of moose) were obtained chiefly from Canada and released (in the Adirondacks). The following year four or five more were received. Several were mistaken for deer and shot; the others presumably found their way northward to Canada again."

The bull mentioned in the clipping would be wise to follow their example.

A. Osborne Mayer, Waterville

"FUSTEST WITH THE MOSTEST"

Dear Editor: I enjoyed Eric Brasie's letter taking you to task for the article in September-October Fish and Game News giving credit to Malone Game Club for setting the example in giving subscriptions to *The Conservationist* to schools, etc. I know Eric is a whiz when it comes to taking walleyes out of Black Lake, but here's a bit of news for him: Ilion Fish and Game Club, Inc. sent gift subscription of *The Conservationist* to local schools, hospitals, veterans' organizations and all fraternal clubs, way back in October 1946, which your records will confirm. I guess this puts us at the top of the list. We have also been attaching a subscription blank to every membership card since the first issue of *The Conservationist* was edited. We believe that no sportsman should be without it. For the past two years we have been using the color plates on the back cover, as a window display in the spring, with the opening dates of each species printed underneath.

Al. Howison, Corr. Sec.,
Ilion Fish and Game Club, Inc.

WILDLIFE NOISES

Dear Sirs: Do you know of any recordings of the screams or other nocturnal language of some of our noisier wildlife? I would like to get such a recording if possible so that I will not think the noise of a hoot owl is a bobcat.

U. G. Hatzenbuhler, New Berlin

• *We have in the office two volumes of records produced by the Comstock Publishing Company, Ithaca, N. Y. One volume contains six records of bird songs; the other, four records of the noises made by frogs and toads (including "peepers"). All are actual recordings made in the field, and not imitations. We think they're very good. You might write the company for further information and prices.—Editor*

THE PANTHER BUSINESS

Dear Editor: Charles E. Fowler, Mt. Vernon (his letter in your last issue) undoubtedly did see a panther—not a fisher or otter, Mr. Editor—in the vicinity he claims he did.

Dr. A. Rueckwald, Massena, and Dr. F. Rueckwald, Lowville, saw a panther on a dirt road that runs along Salmon River and saw it in the daytime. I and other members of our camp at Blue Mountain have seen panther tracks around Buck Mt. and Terrill Pond on several occasions. We have also seen evidence of deer having been eaten by a large animal, like a panther might do.

O. M. Comfort, Sherrill

• *That does it; in our next issue, we'll come up with a full-fledged article on the panther in New York.—Editor*

BEAR HUNTING

Dear Editor: The cover picture entitled "Winter Evening in the Catskills—Bear Hunting" of the February-March issue of *The Conservationist* is charmingly attractive with its background of warm soft tints; but isn't artist Bartlett asking just a little too much of the nocturnal nimrod when he requires him to shoot around Section 171 of the game laws of N. Y. State to topple over old bruin?

Miles A. DeGroff, Fort Johnson

• *Yup. But Artist Bartlett preceded Section 171 by about 100 years.—Editor*

OOH-HOO

Dear Sir: Going out to the chicken house this morning I heard a couple of birds calling to each other. I would be much obliged if you could tell me what they were. The call sounded something like "Ooh-hoo":

Or perhaps a haft-tone higher, and they kept repeating it without much pause. One would call and the other would give a perfect echo from about a hundred yards away. I got the impression that the birds were small, as the tone was rather thin and reedy.

Fred Crane, Bedford

• *Music Man says chickadee.—Editor*

MOHAWK STRIPER

Dear Sir: You may be interested to know that another striped bass was caught in the Mohawk. (Reference is to December-January '50-'51 issue, page 30.) I was fishing with my boy in the fast water at the base of the dam at Lock 8 in Scotia at the time. A lady fishing with small minnows was catching black bass at frequent intervals and occasionally catching two at a time.

While fishing this way she caught the striped bass. Neither she nor her husband could identify it and called to me, the only other angler around. The fish was about 12 to 14 inches long and was a beautiful specimen. I was sure of its identity because I lived for some time in Baltimore where they are very common. The time of the catch was early October, 1950.

R. K. Suglaski, Scotia

HAND FEEDING TROUT

Gentlemen: Before I ask the question, let me congratulate you on both the form and content of the magazine. The articles are very readable but contain a sound scientific basis and are not weakened in content by over-popularization, which is so easy to do.

Now as to the question: I have a small property on which are two brooks, one running through the property and one that originates in a spring. In both of these there occurs natural reproduction of brook trout and I have dammed them up, making two pools varying from 20 to 40 feet wide by 100 to 150 long and three feet deep. My question is: What could I feed these trout? I have limited refrigeration and transportation facilities (i. e., I can haul plenty in, but not on a frequent basis). In other words, is there a dried or canned food that would be suitable for this purpose? If such is not obtainable commercially, could you give me a formula so that I might make it myself?

Dr. Joseph B. Furst, New York City

• *A practical idea, and good question. So good that we will have an article on the subject of hand feeding trout in our next issue.—Editor*

RABBIT BURROWS?

Dear Editor: Having read your article on the cottontail rabbit in the December-January issue of *The Conservationist*, I wonder if you would settle a discussion we are having about the rabbit's burrow.

Some of us are of the opinion that the rabbit digs a burrow similar to the woodchuck, and others that the rabbit digs a shallow burrow under a fallen log, bush or rock. If they dig their own burrow, how deep do they go down?

Paul M. Sorel, Schenectady

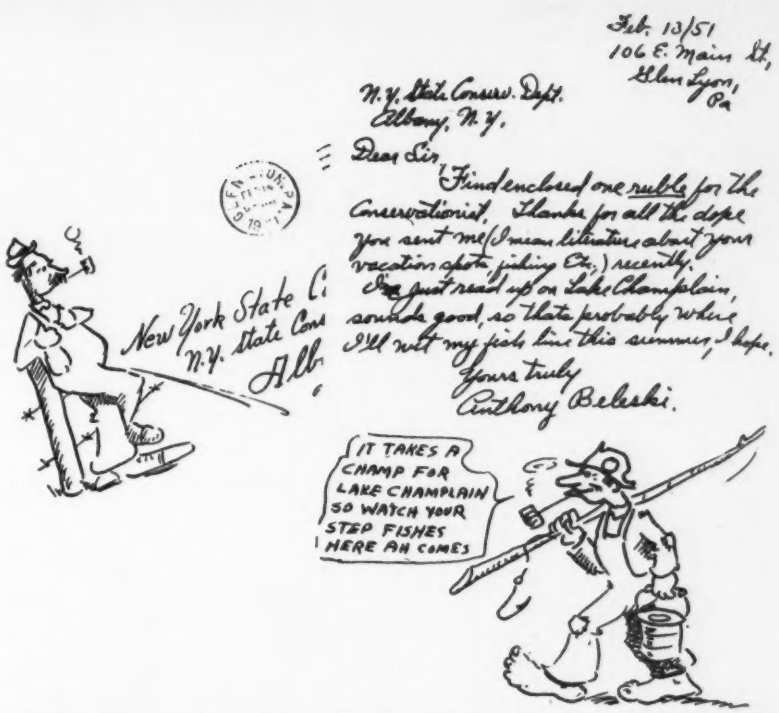
• *Cottontails don't dig burrows like woodchucks, and seldom if ever do anything more than scratch out a shallow depression in which to place their nests. On the other hand, they often appropriate a burrow dug by a woodchuck—as do foxes, skunks, etc.—Editor*

TRAPPER'S COMPLAINT

Dear Sir: I guess I am one of many trappers in the southern zone who thinks we are getting a bad break in the trapping law. We cannot catch 'coon until the dogs have them wild. We have no mink much due to an early open season. We have lots of 'rats but cannot trap them due to a late open season. Foxes are worthless so we may trap them for fun. Would you buy a trapping license with this condition? I give up.

I'd like to see what the others think through the best out-of-doors magazine in the State.

Art Palmer, Gilbertsville


Feb. 13/51
106 E. Main St,
Glen Lyon, Pa
N.Y. State Conserv. Dept.
Albany, N.Y.
Dear Sir,
I find enclosed one ruble for the Conservationist. Thanks for all the dope you sent me (I mean literature about your vacation spots, fishing Etc.) recently.
I've just read up on Lake Champlain, sounds good, so that's probably where I'll wet my fish line this summer, I hope.
Yours truly
Anthony Beleski.
New York State C
N.Y. State Cons
Alb
IT TAKES A CHAMP FOR LAKE CHAMPLAIN SO WATCH YOUR STEP FISHES HERE AH COMES

• *Probably lots of trappers will agree with you. But present trapping regulations are designed to provide for the taking of pelts when they are prime—which for most species means fall and early winter trapping. Beaver and muskrat are exceptions, and for prime pelts they must be trapped after February 1. As to 'coons, they're game animals as well as fur bearers, so the regulations must recognize the interests of both trappers and hunters.*

Incidentally, New York produces more raw furs than any other State in the Nation except one; muskrats put Louisiana in first place.—Editor

WITH MASK AND SPEAR

Dear Editor: I've been fishing in ocean waters by surface diving 15 to 20 feet beneath the foam and with the aid of a swimming mask, fins, and a six-foot pole with spearhead, and have speared any fish that I could approach or surprise. Is this type of fishing allowed in the fresh water lakes of New York State?

Joseph Mastropaolo, Brooklyn

• *Only in those waters, for those species, and at the times listed in the Department's Spearing Order, published annually in the early spring. —Editor*

BLACK SNOWSHOE

Dear Editor: We note with interest your article on melanism, with picture of black snowshoe rabbit. About 20 years ago while hunting near East Branch, Delaware Co., my husband shot just such a black snowshoe rabbit. At that time we had never heard of melanism—to us it was just a freak, a black "white" rabbit. We gave it to the local barber who hung its hide on display there in his shop for some time. I reserved the lucky (?) left hind foot, which I still have, though at this date my conclusion is that the foot might as well have gone with the hide.

Mrs. Peter McAdams, Beerston

NESSMUK

Dear Editor: The article you carry in the current issue of *The Conservationist* regarding Nessmuk is of particular interest to me for several reasons. His book on "Woodcraft" and his poems "Forest Runes" have been great favorites of mine for several years and then too, Nessmuk was a good friend of my father.—J. G. Case. They had met in New York on a few occasions in Mr. Reynolds' office of "Forest and Stream" and I also find from my father's diary of 1883 that on August 6 of that year, while he was returning from a trip to Cold River with Fred Loveland, his favorite guide from the North Woods Club, and as they were heading for Camp Island, on Long Lake, where they intended to camp for the night, they met Nessmuk. They spent the night together in a lean-to on Camp Island.

My father and Fred Loveland had gone by lumber wagon to Long Lake Village, taking their guide-boat and camp duffel with them, and the diary makes two references to the "small and very light canoe being used by Nessmuk" which is evidently the Rushton canoe referred to in your article.

J. Frank Case, Kirkville

LYNX, BAY AND CANADA

Dear Editor: In your December-January '48-'49 *Conservationist*, "The Cat that Nobody Knows," by Clayt Seagears, I note Mr. Seagears states the lynx is believed to be extinct in New York.

On March 10 I saw a cat caught by a trapper near Eldred, Sullivan Co. that had all the markings of a lynx. There were tiger stripes on the body, end of tail ringed with black, long body, very poor weight (30 lbs.). Is it possible this was a bay lynx, or just a freak?

G. H. Evans, Monticello

• *No freak, but a bay lynx, more usually called a wildcat. Not to be confused with a Canada lynx.—Editor*

FOXFIRE

Dear Editor: In "Letters to the Editor" (February-March) you printed an answer to the question "What is foxfire?" May I point out several errors in your reply.

(1) The partciular phenomenon that Mrs. Florice G. Dafoe of Hermon witnessed was not one of luminescence in decaying wood due to certain fungi, but rather escaping marsh gas, better known as methane CH_4. This gas is the product of decaying organic matter in marshes and along stream banks. It collects in pockets and when enough collects it bubbles to the surface of the marsh, or in this case the stream bank, and ignites upon contact with the air. A stream of bubbles can give what appears to be a continuous flame of several seconds duration.

(2) You also stated that *Basidiomycetes* are an "Order." May I point out that Basidiomycetes are a "Class" in which there are twelve Orders. The common mushroom *(Psalliota campestris)* belongs to this class and is of the Order *Agaricales*. (See "College Botany," by Fuller and Tippo, H. Holt & Co., New York 1949. pp. 671-675)

It may also be of interest to your readers that in this class are Smut fungi, Order *Ustilaginales*, that raise the devil with the corn and cereal farmers; rust fungi, Order *Uredinales*, that has all but annihilated the white pine here in the east," also Order *Lycoperdales* which are the puffballs and related fungi. Some of the giant puffballs, when young, are a delicacy when fried in butter.

I am not discrediting your theory about the luminescence in decaying wood being used as a source of light where no flame could be used, but to take methane into a barn would be about as sane as using a sledgehammer to break up a bag of nitrate fertilizer. Either way, look out.

Edmund M. Collins, Syracuse

• *We will. And thanks.—Editor*

DUCK NOTES

Dear Editor: I am living on the shore of Pea Soup Lake (Lake Champlain). I have a part time job with the State Conservation Department banding ducks and doing whatever I can help with.

I have sent you a few pictures of the banding station on Lake Alice at Chazy, County of Clinton. The last two years I handled over 650 each year. What burns me up is this fellow on the western side of the State near Watertown; he beats me every year.

To Mr. Ripley's claim that the humming bird is the only bird that can fly backward as well as forward, I answer that the wood duck can also fly backward. James Perry, who helps me when I can go to my trap—he and I were out checking the trap one rainy night (I look at my traps at night so not to disturb the daily flight). We got curious, so when I released a wood duck I put the spotlight on him. The duck was about 30 feet high and about 50 feet away. When I put the spotlight on him he put his wings in reverse and flew back to my feet.

Imer Carpentier, Chazy

FOR HIGH SCHOOLS

Sirs: Please send a one year's subscription of *The Conservationist* to each of the high schools of Essex County. These subscriptions are a gift of the Essex County Adirondack Garden Club to these high schools. Enclosed is a check for seventeen dollars to cover cost of same.

Mrs. E. V. Baker, Secretary,
Essex County Adirondack Garden Club,
Willsboro, New York

POINT OF LAW

Dear Sir: Is it permissible to fish from the highway in streams (or other waters which the highway crosses) wholly bordered by private lands or in streams flowing through private lands, designated as "State-stocked?"

Alvin J. Phillips, Watervliet

• *If the land is not posted, yes; if the land is posted, no. But if the land is posted the stream is not State-stocked.—Editor*

CLUB NOTE

Dear Sir: Just to let you know that the Oakfield Rod and Gun Club, of which I am a member and also director, has voted to give one year's subscription for *The Conservationist* as a door prize at our regular monthly meeting. Would like to see other clubs throughout the State do the same thing.

Walter Czaja, Batavia

• *So would we. Thanks.—Editor*

PINE CONES

Dear Mr. Littlefield: I have an island in the Hudson, about six miles below Fort Edward, which bears many fine, old pine trees. I am one of the type you mention (Cones For Christmas, December-January) that might expect a pine to grow if I planted a cone. I supposed this was true because I have noticed for many years that a certain number of cones would fall and lodge in the ground, point down. Despite the fact that the scales point down and therefore naturally retard any movement of the cone into the earth, I have found them more times than I can estimate from one-third to one-half imbedded in the fairly firm earth of the forest floor.

Will you be so kind as to let me know why this phenomenon. Nature, as a rule, does not waste energy.

William H. Hill, Fort Edward

• *If the cones were cut off by squirrels in the green stage, the scales would be closed and would present no resistance in penetrating the earth. Or squirrels might have partially cached them; they don't always do a thorough job.—E. W. L.*

BINDING THE MAGAZINE

Dear Editor: It is interesting to note that many of your subscribers save their copies of *The Conservationist* as reference material. My son, Ronnie, and I also do, and when we acquire a year's supply of six issues we then bind them in book form for convenience. Indeed they are much handier as such than having a lot of magazines laying around the house, some of which may become lost or thrown out.

Well now, we can offer our service to other subscribers. Six issues in either "Volume" or "Year" form will be bound—no more, as they become too unwieldly to handle. They will be properly collated and hand sewn with correct backing applied. The covers are made in two colors (red and black) in half bound style. The cover material consists of .060 pasted chip board base with cotton paroxilyn coated (waterproof) leatherette covering.

We are sending you a sample volume under separate cover. This is not a slip-shod job, as you can see and appraise. Ronnie is a Boy Scout and has passed the requirements for a Merit Badge in bookbinding—which is quite exacting.

The Conservationist is certainly well worth conserving and in book form will make an attractive and convenient volume for the home. The charge is $2 plus postage. Deliveries will be made as soon as possible, since all work is done at home. This is Ronnie's way of earning his expenses in his Scout work and activities.

Henry and Ronald DeBock, 3185 Dewey Ave.,
Rochester 16, New York

• *We got the sample volume, and don't hesitate to recommend it both for quality of workmanship and as an efficient means of preserving the magazine for reference. In our opinion, two dollars is a very fair price for this job, and we'd like to see Scout Ronnie get some business.—Editor*

Dear Editor: Here's something your readers may like to know: For 50 cents or thereabout, they can get a heavy duty biscuit cutter known as a drive punch from the hardware store. Roughly ¼ inch diameter is about right. With one of these and a hammer, *The Conservationist* can be punched in the margins to fit standard loose-leaf ring binders—about one year (6 copies) to a binder is fine.

John B. Ehrhardt, Madison, N. J.

BAT HIBERNATION

Gentlemen: On next to the last page of the December-January 1950-51 issue (middle column at the bottom of page), in discussing attic trap lines mention is made of bats and their hibernation. Is that factual nature, or is it nature faking?

The late Ernest Thompson Seton in "Wild Animal Ways," Chapter V, under the title "Atalapha, a Winged Brownie," discusses the bats of the Adirondack region and says they migrate the same as swallows.

I have never seen bats migrating; neither have I ever seen them hibernating. Of course, it might be possible that both you and Seton are right. Seton mentions two species, both migratory.

Shirley D. Babbitt, Rushford

• *Most bats of the eastern United States hibernate. In fact, bats are listed with ground squirrels, woodchuck and jumping mice as the most pronounced North American hibernators, according to Dr. W. J. Hamilton, Jr. of Cornell in his book "American Mammals," (McGraw-Hill 1939).*

When Seton wrote the piece mentioned, not too much was known concerning the hibernation of bats. Since then, however, a lot of stuff has come to light. Many thousands hibernate here and there in New York State in hollow trees, under loose bark, beneath the clapboards of houses or camps, in attics against chimney, in caves, building lofts and assorted varieties of dark cubbys.

Myriads hibernate in the caves of Pennsylvania where extensive bandings of bats has been carried on for several years.

Many scientists are at work gauging the chemistry of bat hibernation. For example, Charles A. Evans has pointed out (in "The American Naturalist") that his studies would indicate that during dormancy the spleen of the bat serves as a reservoir for red blood cells. These in turn are recirculated in the blood stream by an automatic action when the animal is disturbed. Other studies now seek to show what relationship there may be regarding the functions of the human spleen.

New York State's common hibernators in this family include the big brown bat, the little brown bat and the pipistrelles.

On the other hand the big hoary bat, which normally seems to be a tree rooster, very probably migrates south, apparently clear to Mexico, as does the red bat—although there are records of hibernation for the latter.—Clayt Seagears

FACE VERY RED

Dear Sir: I would like to call your attention to a misstatement which appears in the February-March 1951 issue of *The Conservationist*, and at the same time brag just a little bit about the State of Michigan.

On page 38, in "Letters to the Editor" there appears an editor's note immediately below a letter written by Herbert Cramer with reference to state land. In the editor's note, you state in part as follows: "The State (which means you) already owns more than one-tenth of all the land in New York—a far greater fraction than in any other State in the Union."

For your information the land area of the State of Michigan is 36,494,080 acres. Of this total, the State of Michigan owns 4,354,000 acres. Reduced to percentages, the figure is about 12 per cent. This state-owned land is under the jurisdiction of the Conservation Department and each month the total acreage is increased by the purchase of additional land. In addition to the state-owned acreage, more than 2,225,000 acres of land in Michigan are in Federal ownership in the five National Forests. This means that Michigan hunters are free to hunt on two out every ten acres of land in the State of Michigan.

In addition to pointing out this correction, may I at the same time compliment you for a very fine publication. I await the arrival of *The New York State Conservationist* with interest and read the magazine from cover to cover, including all the letters to the editor.

D. J. Curry, Regional Chief,
Conservation Department, Marquette, Mich.

• *We stand corrected. A feverish attempt to bring our percentage up to Michigan's failed miserably; New York only owns about 11 per cent of itself. Thanks for putting us straight.—Editor*

FIREHOUSE READING

Dear Sirs: Just having finished reading *The Conservationist* in the firehouse and passing it on to all 52 members, several men asked for back copies. I have at home back copies until October 1948 which I will bring in for all hands to enjoy. But I wonder if any of your readers want to get rid of back copies prior to October 1948 so that members of Hook and Ladder #20, Engine 13 and the 3rd Battalion may read them.

Lieut. John P. Mitchell,
Hook and Ladder #20, 155 Mercer St., N. Y. C.

LISTING THE SEASONS

Dear Editor: Why don't you publish a list of the current fish and game seasons that are open, covering the period of each magazine, and the special dates for spearing and pheasant seasons, etc.?

Dorrance M. Casselman, Albion

• *We'd like to. But if we published the regulations in full it would take six or eight pages of our magazine. And if we tried to condense them, it would undoubtedly get somebody into trouble.—Editor*

THIRD ANTLER

Dear Editor: With regard to the photo of the deer with a third horn that appeared in the February-March issue of *The Conservationist*, please find enclosed a print of a mounted deer head with a third horn. You will notice the third horn very plainly protruding from just over the left eye of the deer.

This deer was shot by Mr. Almeron Hale of Keene on November 15, 1934 on Hurricane Mountain in Keene. The weight of the deer was approximately 175 pounds. The deer head may still be seen at the home of Mr. Hale on Hurricane Mountain in Keene, where it still hangs in the parlor, where I took the enclosed picture.

Bill Coughlin, Keene Valley

PECONIC LORE

Dear Sir: I am particularly taken by the (aerial) view you have of Peconic Bay (December-January). It reminds me of an incident that happened long ago at about the middle of the picture. Several men in a boat off there discovered under them a quantity of iron ore. They locally reported that there was a bed of iron there, not realizing that within about two miles of where they were there was an iron foundry some years earlier, and the iron they used came from up the Hudson River and entered Peconic Bay by boat. A storm wrecked the boat and the iron from that boat was for many years to be seen at the bottom of the bay.

I investigated and found that among the iron material made at the works within a mile of Riverhead were the anchors used on our famous boat, The Constitution, in 1812.

Morton Pennypacker, East Hampton

BACK ISSUES

Dear Sirs: I have a complete set of *The Conservationist*. What am I offered for the entire set?

Armand E. Dilone,
5-11 117 St., College Pt., N. Y.

CREDITS

First, second covers, page 32, Doug Finch; 1, Benj. Lossing; 4, 5, 6, P. W. Fosburgh; 11, Verplanck Colvin; 12, 13, Paul Crawford, Paul Crouch; 14, 15, Robert G. Zilliox; 17, Arnold Arboretum, Jamaica Plains, Mass.; 19, Fred Chambers (pilot, Earl McGuirk, Jr.); 22, 23, 33, Fred Everett; 24, 25, Ray Bender; 26, 27, Nick Drahos; 29, Bob Otty; 30, H. B. Settle, Saratoga Springs; 31, W. Bryant Tyrrell; 35, Wm. Mullholland; 4th cover, Ellen Edmonson.

Tale of a Rainbow

DO join me while I tell about the marriage of my 100,000th daughter. She has wed the handsomest two hunks of husbands who ever kissed a kelt.

Hold what I have to say in due respect for I'm the most regal rainbow in all Seneca. I say I'm Seneca's largest rainbow but I could be wrong. This hunk of Finger Lake covers 60 square miles and goes over 600 feet deep in her soaking feet. Anyway, I scale 33 pounds and cover 40 inches. Eleven summers have passed me by. I have not long to go, but in my time I've eaten 50,000 Seneca sawbellies. Oops, pardon me. There's dinner now.

(The big trout shot up through the gloom of 150 feet of water. Soon a dozen six-inch alewives (branch herring) glinted faintly, bottoms up, stunned as the rainbow slashed into the school. Back she swam, picking up her victims.)

I've spawned eight times in Catharine Creek since I was three. Most of us go up in March, at night. See that scar. That's where some jerk stuck a gaff in me. Those marks show where a little black dog grabbed me while I tried to swim through a rusty bedstead out of an orange crate some thoughtful schmoo heaved over a bridge on me. I've grabbed a few of those cheesecloth bags of trout eggs you guys used to fish with in Catharine, too.

But now we rainbows get a better break. No more gaffs or bait-eggs or night fishing. Only thing I'm really afraid of is getting fooled down there beyond the Watkins Glen breakwater when the Creek is dumping a muddy flood into Seneca. You know I generally sit a few days out there getting my strength back from spawning. Four or five times I've nearly mistaken a spoon for a cisco. You really need windshield wipers to see anything through the mud you humans have been dredging up.

If you've never seen a good jumping rainbow mess up a Seth Greene rig in deep water you can't appreciate how much those lake trout anglers hate us. They catch around 150 tons of lakers in here every year—"Eatin' fish" they calls 'em—and they cuss us tackle smashers. But Mister, what fish bring more thousands of fishermen to one spot anywhere than we rainbows do Opening Day on Catharine? I tell you, my friend, we mean real dough to those communities. Maybe someday somebody'll plant some trees on those eroded hills up that valley and help keep back the muddy water that silts up our spawning beds and smothers our eggs.

Don't let me forget to tell you about my daughter which just got married. But personally I was spawned in a pan at Randolph—one of New York's fish hatcheries. My ma, I heard later from an old hardhead, was a fat three-year-old. One spring day she was netted with a bunch of other hatchery breeders ripe for stripping. A man stuck her head under his arm and kind of stroked her tummy. I was one of the 888 eggs which streamed out into a pan.

My shell was way too large for my yolk right then. A big empty space was inside. I soon found out why after my beautiful cerise-lined father was stripped like ma. But instead of more eggs falling over me in the pan, it was milt—sperm. Then they stirred in some water and mixed us all up with a turkey feather. Well boy! As soon as that water hit me, I went simply carazy. My shell pores opened and I sucked in water like the bulb of a squirt gun. The suction was so great that I stuck to the pan. Well whaddaya guess I sucked in with the H_2O? Yassah, 'twas that Grade A homogenized milt. The birds and bees department was organized. I started to become a fish. Swelled to capacity, I quit adhering to other objects. I was round and firm and fully packed.

LATER, a hundred thousand of us rainbow eggs, spread on trays, were shipped to another State hatchery—Caledonia. It was there, before 1875, that the first little rainbow eggs—from California's McLoud River, I think it was,—arrived in New York State. Then they were called California mountain trout. With them were a lot of other rainbow eggs—bigger ones—from a race of sea-run fish some called steelheads. There were eggs from what the Indians called Noshees, too. Anyway, my ancestors got all mixed up. Now the fisheries boys call us easterners just rainbows. We're all *Salmo gairdnerii*. None of us are spotted alike (see picture). Take me f'rinstance, I'm silvery all over now. My own spots don't show much except on my caudal, my dorsal and on my itty bitty adipose.

So I was hatched at Caledonia after about two months of sitting around in my egg. At first I had a lunch box attached—for my egg yolk still was stemmed to me like a balloon. It lasted a month and provided my meals. When it was absorbed I really began to swim.

I stayed in the Caledonia races a year. What a place. The water simply ca-rawled with galloping gammarus. They made my meat deep pink. They tell me Indian Lake up in the Adirondacks once swarmed with those succulent shrimps too, and they made the lake's brook trout among the most beautiful in all the land—that is until some guy dumped in northern pike which knocked off the trout.

Finally I went in a truckload of other yearlings to the mouth of Catharine here. I was as large as the young native smolts twice my age coming out of the Creek for the first time. But it wasn't until I was three that something touched me off one March day. Maybe the other rainbows told me when they finned by, headed South. Suddenly the magic of life sent me with them—on into the Creek. A whole slew of males already were there. I spawned.

ONE day last spring a pretty little 3½ pound rainbow flashed up to me while I snuggled under Catharine's bank at Deckertown and she says, "Ma, I'm your 100,000th daughter." So I takes a special look at her. She was in the Creek for her maiden eggsexit. Soon she sashays out on the gravel rift and begins to do what comes natcherly. She slashes her tail into the pebbles and she digs a hollow. All this time a flock of smaller males have been dashing around her. One of 'em, the cutest little kype I ever saw, beats off the others—all but a two-pounder who hangs all by his little lonesome right in behind. Then daughter moves up over her nest and the two males slither in, one on each side. I could see they pressed against her just like the hand that pressed the eggs out of my mother.

For a moment they all sort of shuddered together. Then I got a flash of the eggs dropping into the nest as the milky milt clouded them. I could remember how that first suction by my own egg made me stick to the pan and how the milt-mixed water was sucked in to give me life. I could see her eggs stick to the pebbles in the nest, defying the snow-swelled currents of Catharine. Soon, deft sweeps of her tail covered them with stones and held them safe until, months later when they had hatched and absorbed their yolks, they could wiggle up between the cracks to free-swimming life—I hope.

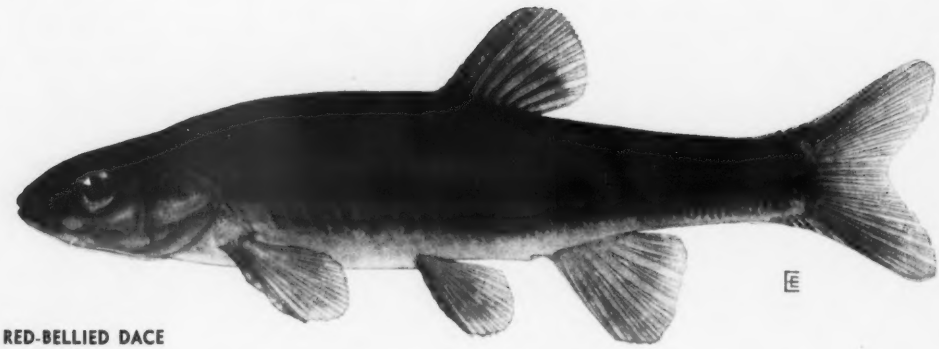
Yes, it was a perfectly wonderful wedding. I forgot to say that some of the eggs didn't get covered. I ate 'em.

—CLAYT SEAGEARS

By Clayt Seagears

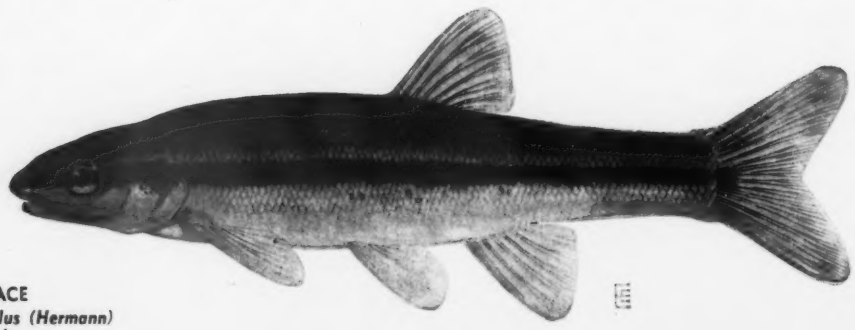
All Rainbows—but different spots

THREE TROUT ASSOCIATES (see page 33)



NORTHERN RED-BELLIED DACE
Chrosomus eos (Cope)
Breeding colors from male 2-5/16 inches long

SCULPIN
Cottus cognatus (Richardson)
From male 3½ inches long



BLACK-NOSED DACE
Rhinichthys atratulus (Hermann)
About 2¾ inches long